

*Refer to parts list on page 42.

CONTENTS

CIRCUIT DESCRIPTION	2
SEMICONDUCTOR DATA	22
DESCRIPTION OF COMPONENTS	32
PARTS LIST	41
DISASSEMBLY	75
PACKING	79
LEVEL DIAGRAM	80
ADJUSTMENT	81
BLOCK DIAGRAM (TS-680S)	91
BLOCK DIAGRAM (TS-140S)	93
PC BOARD VIEWS/CIRCUIT DIAGRAM	
CONTROL UNIT (X53-3100-XX)	95
SIDE TONE (X59-1080-00)	101, 110
VOX (X59-1080-00)	110
FM MIC AMP. (X59-3000-02)	101, 110
TRX (X59-3340-00)	101, 110
NB2 (X59-3350-00)	101, 110

DELAY TIME (X59-3360-00)	101, 110
SIGNAL UNIT (X57-3190-00) : TS-680S	102
TERMINAL FUNCTIONS	106
PC BOARD VIEWS/CIRCUIT DIAGRAM	
SIGNAL UNIT (X57-3200-XX) : TS-140S	111
SWITCH UNIT (X41-3030-XX)	115
FINAL UNIT (X45-3100-XX)	116
FAN (X59-3370-00)	116
FILTER UNIT (X51-3040-XX)	117
DISPLAY UNIT (X54-3050-XX)	119
SCHEMATIC DIAGRAM (TS-140S)	121
SCHEMATIC DIAGRAM (TS-680S)	124
YK-455C-1 (CW FILTER)	127
TU-8 (TONE UNIT)	128
IF-10C (INTERFACE KIT)	132
SPECIFICATIONS	134

FOR SERVICE MANUALS
CONTACT:**MAURITRON TECHNICAL SERVICES**

www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

CIRCUIT DESCRIPTION

Note: This text is concerned primarily with the TS-140. those parts that pertain to the TS-680 will be marked with an asterisk (*).

GENERAL

The TS-140 is a transceiver incorporating a general coverage receiver section utilizing double conversion principles with a first intermediate frequency (IF) of 40.005 MHz and a second IF of 455kHz.

The TS-140 covers all amateur bands from 1.9MHz to 30MHz (*1.9 thru 50MHz). It contains a 10Hz step digital PLL circuit using single crystal frequency management and microprocessor control to provide high accuracy and stability.

The major functions are as follows:

- Receiving section: General coverage from 500kHz to 30 MHz (*500kHz to 30MHz, and 50 to 54MHz)
- Covers all amateur bands from 1.9 to 30MHz (*1.9 to 54 MHz)
- Full CW break-in
- 28MHz (*50MHz) band Preamplifier control
- Manual switching of AGC time constant
- Built-in variable threshold noise blanker

- Built-in woodpecker noise blanker (NB2)
- Frequency control function with a second sub-control
- Frequency configured using a single reference oscillator
- Range specified memory

FREQUENCY CONFIGURATION

The TS-140 operates using a double conversion system for both transmit and receive (it operates using single conversion in the FM transmit mode).

Figure 1 shows the frequency configuration of transmit and receive systems. The receiver section will be covered first.

Assume that the input frequency from the antenna is f_{IN} , the RX MIX1 local input is f_{VCO} , and the RX MIX2 local input is f_{HET} . When the incoming signal is zero beat, the following relationships will hold true.

$$f_{IN} = f_{VCO} - f_{HET} - f_{CAR} \dots\dots\dots (1)$$

$$\text{for VCO4, } \frac{f_{VCO4}}{J} = \frac{f_{STD}}{8K} \therefore f_{VCO4} = \frac{J}{8K} f_{STD} \dots\dots\dots (2)$$

$$\text{for VCO3, } \frac{f_{VCO3}}{L} = \frac{f_{STD}}{8 \times 900} \therefore f_{VCO3} = \frac{L}{7200} f_{STD} \dots\dots\dots (3)$$

$$\text{for VCO2, } \frac{f_{VCO2}}{M} = \frac{f_{STD}}{8 \times 4500} \therefore f_{VCO2} = \frac{M}{36000} f_{STD} \dots\dots\dots (4)$$

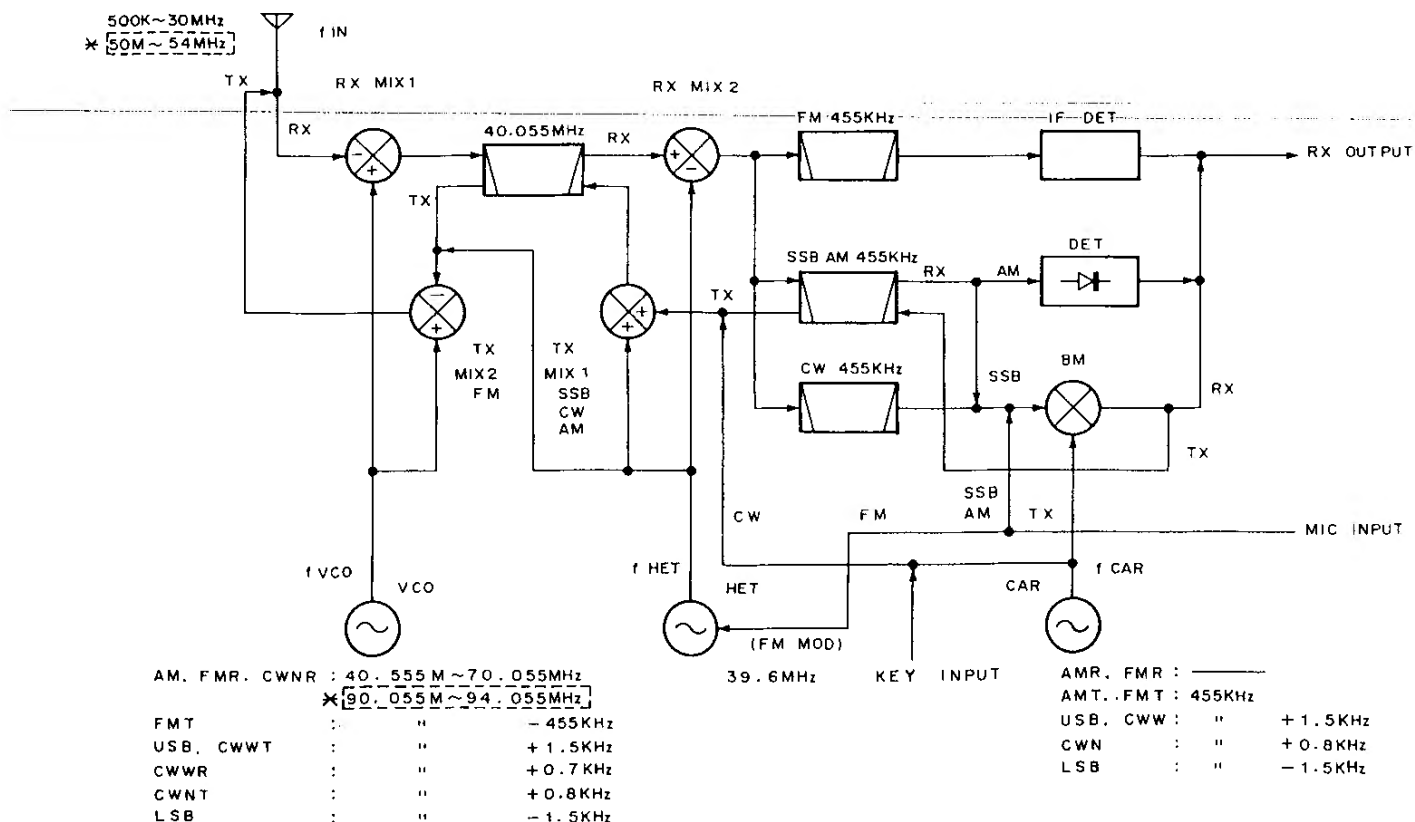


Fig. 1 Signal system frequency configuration

CIRCUIT DESCRIPTION

for VCO1, in the range of 500kHz to 30MHz

$$f_{VCO1} = \left(\frac{f_{VCO2}}{100} + \frac{f_{VCO3}}{200} + \frac{f_{STD}}{8} + \frac{f_{STD}}{8} - \frac{f_{STD}}{8} \right) = \frac{f_{STD}}{8 \times 90}$$

$$\therefore f_{VCO1} = \left(\frac{N}{720} + \frac{M}{3600000} + \frac{L}{1440000} + 1 \right) f_{STD} \quad (5)$$

Each local oscillator frequency may be summarized as follows:

$$f_{VCO} = f_{VCO1} \quad (6)$$

$$f_{HET} = f_{VCO4} \quad (7)$$

$$f_{CAR} = \frac{f_{VCO3}}{200} = \frac{L}{1440000} f_{STD} \quad (8)$$

Therefore, f_{IN} in equation (1) is expressed as follows:

VCO1-A: 500kHz to 10.5MHz:

$$f_{IN} = \left(\frac{N}{720} + \frac{M}{3600000} - \frac{J}{8K} + 1 \right) f_{STD} \quad (9)$$

Similarly, VCO1-B and VCO1-C are represented as follows:

VCO1-B: 10.5MHz to 21.5MHz:

$$f_{IN} = \left(\frac{N}{720} + \frac{M}{3600000} - \frac{J}{8K} + \frac{9}{8} \right) f_{STD} \quad (10)$$

VCO1-C: 21.5MHz to 30MHz:

$$f_{IN} = \left(\frac{M}{3600000} - \frac{N}{720} - \frac{J}{8K} + \frac{17}{8} \right) f_{STD} \quad (11)$$

*VCO1-D: 50MHz to 54MHz:

$$f_{IN} = \left(\frac{N}{720} + \frac{M}{3600000} - \frac{J}{8K} + \frac{17}{8} \right) f_{STD} \quad (12)$$

As we have shown in equations (9) to (12) above the term f_{CAR} can be eliminated, therefore the receive frequency is determined only by the reference f_{STD} and division ratios J to N (except L) (*J,K,M and N).

These equations may be further analyzed as follows:

- (1) The division ratios are determined according to the desired operating frequency, by the microprocessor, and can be assumed to essentially contain no errors.
- (2) Since each relationship is expressed using the f_{STD} linear equation, the reference frequency accuracy equals the operating frequency accuracy.
- (3) The operating frequency remains unchanged even when the value of L changes.

When $f_{IN} = 14\text{MHz}$ (USB) equation (10) is as follows:

J = 180, K = 1,584, L = 18,260, M = 55,000, N = 251

Therefore, $f_{IN} = 1.25 f_{STD}$ (13)

When $f_{IN} = 29.99999\text{MHz}$ (USB) equation (11) is as follows:

J = 180, K = 1,584, L = 18,260, M = 59,999, N = 149

Therefore, $f_{IN} = 1.82 f_{STD}$ (14)

*When $f_{IN} = 53.99999\text{MHz}$ (USB) equation (12) is as follows:

J = 180, K = 1,584, L = 18,260, M = 59,999, N = 330

Therefore, $f_{IN} = 2.49 f_{STD}$ (15)

FOR SERVICE MANUALS

CONTACT:

MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

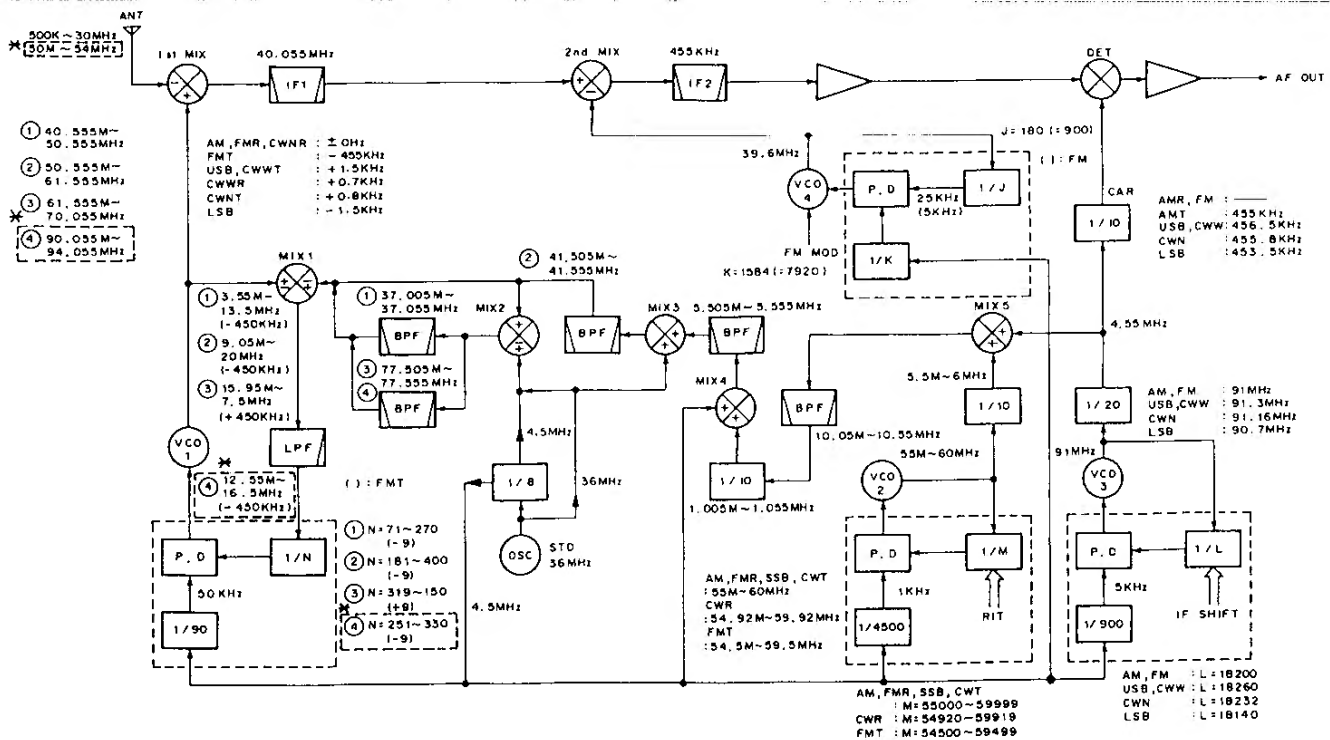


Fig. 2 PLL system frequency configuration

CIRCUIT DESCRIPTION

Since the accuracy of the reference crystal oscillator used in the TS-140 is 10PPM (-10 to $+50$ deg C), the overall accuracy is obtained by equations (9) to (12) according to characteristics (1) and (2). It is $\pm 450\text{Hz}$ for 14MHz, and $\pm 660\text{Hz}$ maximum for the frequency range of 500kHz to 30MHz. The accuracy of the transceiver is very stable.

*The total accuracy is $\pm 900\text{Hz}$ at maximum for 50 to 54 MHz.

The variable band functions such as the IF shift are controlled by the microprocessor, by controlling the value of L , thus taking advantage of the characteristics (3). The carrier point setting and initial IF shift setting are adjusted by fine tuning of f_{CAR} .

The receive frequency in SSB mode has been discussed already. In the other modes and during transmit operations the other modes and during transmit operations frequency is determined by the reference and division ratios in the same manner as in the SSB mode in.

For CW receive the fVCO frequency is shifted down 800Hz at fVCO2.

For FM transmit the fVCO frequency is shifted down 455Hz at fVCO1 and fVCO2. The audio signal from the microphone is applied to VCO4, and fHET is directly modulated.

fCAR is stabilized by shift data During transmit and receive in the AM mode, and during receive in the FM mode.

The displayed frequency in each mode is listed in table 1.

Receive Circuit Configuration

The TS-140 receive system operates using double conversion with a first IF of 40.055MHz and a second IF of 455kHz.

The incoming signal from the ANT terminal passes through the filter unit LPF (Low Pass Filter) and transmit/receive switching relay, and is then applied to the RAT terminal of the signal unit. This signal passes through the 20dB attenuator circuit and an IF trap, and enters the 7 part HPF (High Pass Filter) (BPF for 1.6 to 2.5MHz). It combines with the LPF of the filter unit to give the required band rejection for each band.

*When the signal passes through the HPF, the preamplifier can be turned off or on via relays controlled by Q70 (2SK125-5) and Q71 (2SC1907) for 21.5 to 30 MHz or Q72 (2SK125-5) for 50 to 54MHz. When the preamplifier is turned on the signal is amplified approximately 10dB. For 50 to 54MHz the signal passes through buffer amplifier Q73 (2SC1907) for impedance matching regardless of the preamplifier state.

The signal passes through the IF trap again, and is combined with the VCO (Voltage Controlled Oscillator) in the first mixer, Q18 and Q19 (2SK125-5), to generate the first UF of 40.055MHz. The VCO circuit consists of Q9 thru Q11 (2SC2668Y), and generates 40.555 thru 70.055MHz by dividing it into three bands. The frequency is controlled by the DC signal (VCV) from the control unit.

Mode	Display frequency
USB, LSB	Carrier point frequency
CW	Transmit carrier frequency
AM, FM	IF filter center frequency

Table 1 Display frequencies in modes

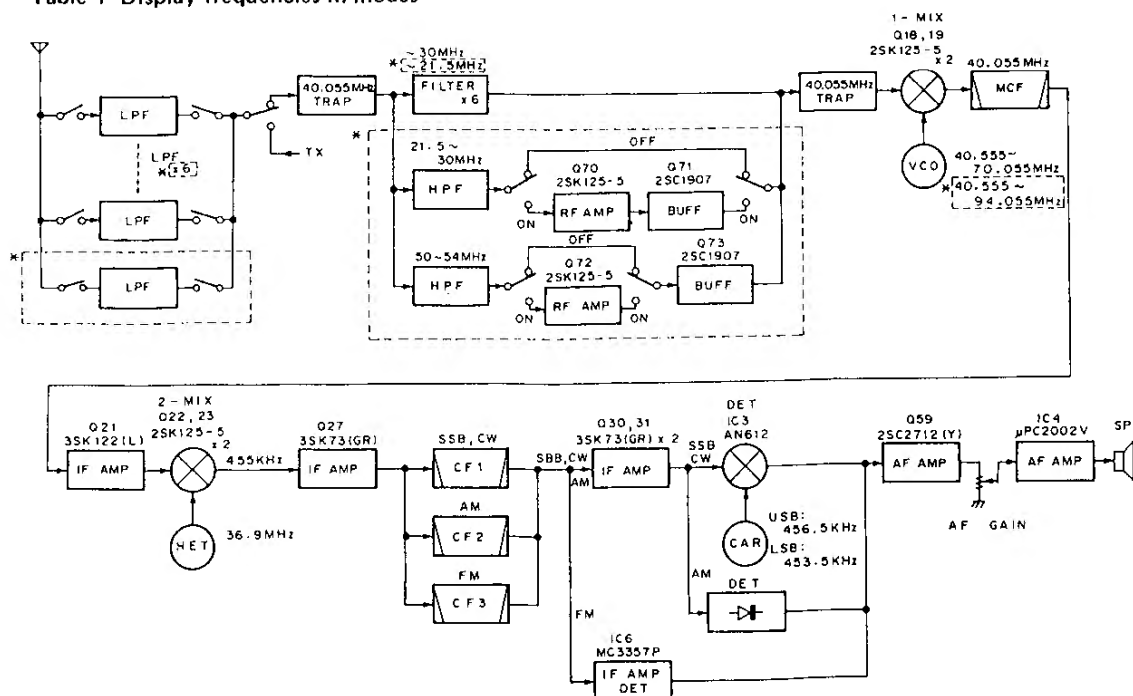


Fig. 3 Receive circuit configuration

CIRCUIT DESCRIPTION

*90.055 to 94.055MHz is generated by the VCO Q12 (2SK192A GR *J). Therefore the circuit contains four VCO's.

The first IF signal of 40.055MHz passes through the two stage MCF (Monolithic Crystal Filter) that is used in both transmit and receive, and is then amplified by the first IF amplifier Q21 (3SK122L), mixed with the 39.6MHz heterodyne signal by the second mixer, Q22 and Q23 (2SK125-5), to generate the second IF of 455kHz. The heterodyne signal is generated by the control unit, then amplified for use by Q78 (2SK73GR). One portion of the 455kHz signal is applied to the noise blanker amplifier, and the other is amplified by Q27 (2SK73GR), passed through the mode specific ceramic filter (CF1 to CF3) or an optional filter to generate the necessary bandwidth, divided into appropriate mode, and fed into each amplifier circuit.

In modes other than FM, the signal is amplified by IF amplifier Q30 and Q31 (3SK73GR), detected by IC3 (AN612) for SSB and CW, and envelope detected by D75 for the AM mode.

In the FM mode the signal is transmitted to IC6 (MC3357P) for limiting, amplification, and detection. This circuit is noise squelch controlled.

The AF signal in each mode after detection is selected by analog switch IC7 (TC4066BP), amplified by Q56 (2SC2717Y), applied to the AF volume control, and amplified the final level by IC4 (μ PC2002V).

Item	Rating
Nominal center frequency (fo)	455kHz
6dB bandwidth	± 2 kHz or less
40dB bandwidth	± 7.5 kHz or less
Insertion loss	6dB or less
Guaranteed attenuation (Within fo ± 100 Hz)	35dB or more
I/O termination impedance	2.0k Ω

Table 4 Ceramic filter (L72-0355-05)
(Signal unit CF2)

Item	Rating
Nominal center frequency (fo)	455kHz ± 1 kHz
6dB bandwidth (From 455kHz)	± 6 kHz or more
50dB bandwidth (From 455kHz)	± 12.5 kHz or less
Ripple (Within fo ± 4 kHz)	3dB or less
Insertion loss	6dB or less
Guaranteed attenuation (Within fo ± 100 kHz)	35dB or more
I/O termination impedance	2.0k Ω

Table 5 Ceramic filter (L72-0315-05)
(Signal unit CF3)

Item	Rating
Nominal center frequency (fo) and declination	40.055MHz ± 0.75 kHz or more
Pass bandwidth	fo ± 7.5 kHz or more at 3dB
Attenuation bandwidth	fo ± 25 kHz or more at 30dB fo ± 150 kHz or more at 60dB Spurious is 30dB or more
Guaranteed attenuation	60dB or more at fo ± 150 kHz \sim fo ± 1000 kHz
Ripple	1.5dB or less
Insertion loss	4dB or less
I/O termination impedance	4.2k Ω

Table 2 MCF (L71-0275-05) (Signal unit XF1)

Item	Rating
Center frequency at 6dB	455kHz ± 0.20 kHz
6dB bandwidth (total)	$\pm 1.1 \sim \pm 1.3$ kHz
60dB bandwidth	4.5kHz or less
Guaranteed attenuation (0.1 \sim 1MHz)	60dB or more
Spurious (600 \sim 700kHz)	40dB or more
Ripple at 6dB bandwidth	2dB or less
Insertion loss	2dB or less
I/O termination impedance	2k Ω

Table 3 Ceramic filter (L72-0356-05)
(Signal unit CF1)

Noise Blanker Circuit

NB1

NB1 is a noise blanker circuit which is designed for short duration noise interference such as might be encountered in an automobile. The 455kHz IF signal generated from the first IF of 40.055MHz by the second MIX is amplified by the noise amplifiers Q45, Q46, Q47 (2SC2712Y), buffered by Q48, and noise detected by D86. This signal switches Q51 (2SC2712Y), turns on Q28 (2SA1162Y) and Q29 (2SC2712Y), and switches the IF signal line according to variations in the incoming noise.

When NB1 turns on, a DC voltage is applied to the emitter of Q51 from the threshold control, VR4. The effect of the noise blanker is controlled by varying this emitter voltage.

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

CIRCUIT DESCRIPTION

NB2

NB2 is a noise blanker circuit which blanks noises that have a relatively long duration, such as is generated by the so called "Russian Woodpecker". The noise signal is first amplified by noise amplifiers Q45 thru Q47, and then detected by D87, just as occurs with NB1. The threshold voltage on the emitter of Q50 (2SC2712Y) is also controlled by VR4. Q50's output enters the NB2 module unit X59-3350-00 to synchronize pulse width and period signals with the woodpecker noise.

1/4,4/4 and 2/4,3/4 of IC1 (TC4011BF), are adjusted to a pulse width of 40ms.

Normally, woodpecker type noise has a pulse width of 3 to 4ms and a period of 80 to 100ms, but some woodpecker noise signals might have a period of approximately 50ms, although rare.

Therefore, even woodpecker noise with a large pulse width can be blanked by switching the noise at a 5ms rate. However, if noise with a period of several ms is encountered, such as ignition noise, and is blanked at this same interval, then the signal level will drop or become zero. To prevent this from occurring a one-shot multivibrator, composed of IC1 2/4,3/4, is utilized so that the next pulse does not occur until after a delay of 40ms, from the last output from IC1 1/4,4/4.

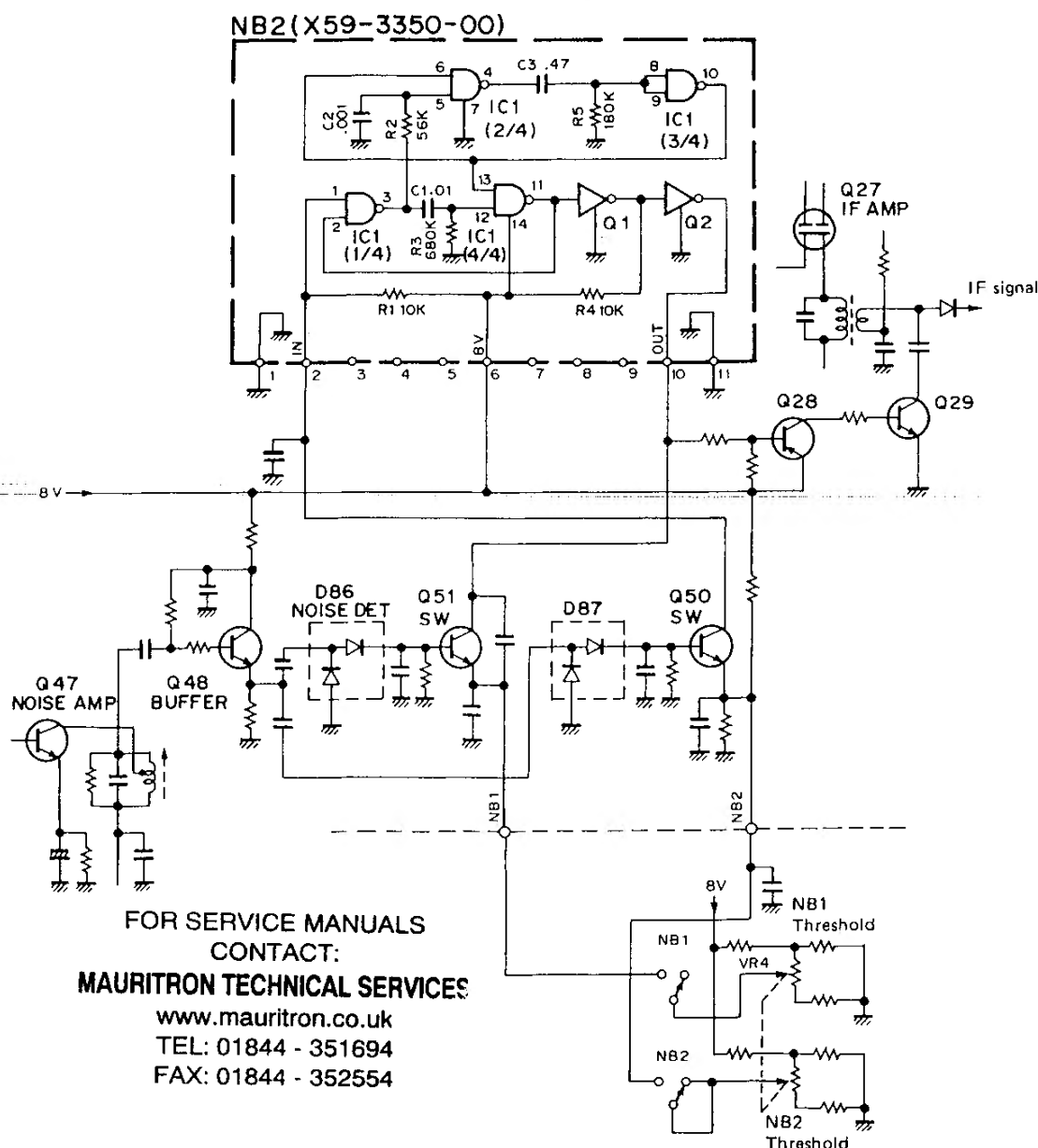


Fig. 4 Noise blanker circuit

CIRCUIT DESCRIPTION

Transmit Circuit Configuration

The transmit system operates utilizing double conversion for SSB, CW and AM and single conversion when operating in the FM mode.

The audio signal from the microphone terminal enters from the switch unit (CN5 "MIC"), and divides into a modulation and a VOX signal. The modulation signal is amplified by approximately 20dB by IC1. Signals from data communications devices enter the ACC2 terminal on the rear panel of the radio and are applied to IC1. The output from IC1 is applied directly to the MIC GAIN control on the front panel and to the FM modulation circuit.

The VOX signal is amplified by Q6 and enters the signal unit (CN501 "VOX"), and then enters the VOX module (X59-1080-00). The output from this module passes through the VOX switch and enters the DELAY TIME module (X59-3360-00) to control the transmitter and receiver.

During SSB and AM operation the signal that passes through the microphone gain control will enter the signal unit (CN1 "MV2"), where it is amplified by Q74 (2SC2712 Y) and applied to the balanced modulator IC3 (AN612). In the AM mode, however, the balance of IC3 is upset to generate the AM signal. Q74 does not operate in FM and

CW modes because the voltage is applied to the emitter thru diode D89. The 455kHz DSB (Double Side Band) signal generated by IC3 passes through the transmit switching diodes D55 and D64, filter switching diodes D56, D57 (SSB), or D57, D60 (AM) to generate the 455kHz SSB or AM signal.

The SSB and AM signals pass through transmit switching diode D55, and are amplified by IF amplifier Q86. The carrier in CW mode optimizes the level past the PIN diode D74. The signal then passes through switching diodes D109, D110, and D122 and enters Q86 (3SK73GR).

Q86 is used to perform ALC (Automatic Level Control) and CW keying.

The 39.6MHz HET signal from the control unit enters the signal unit (CN21 "HET") and is amplified by HET amplifier Q78 (3SK73GR). This HET signal passes through switching diode D100, in the SSB, CW and AM modes, and is fed into the first transmit mixer IC5.

The output from the IF amplifier also enters IC5 and is combined with the HET signal to generate a 40.055MHz signal.

The output from IC5 passes through a MCF, which removes spurious components and enters the second transmit mixer Q79 and Q80 (3SK122L).

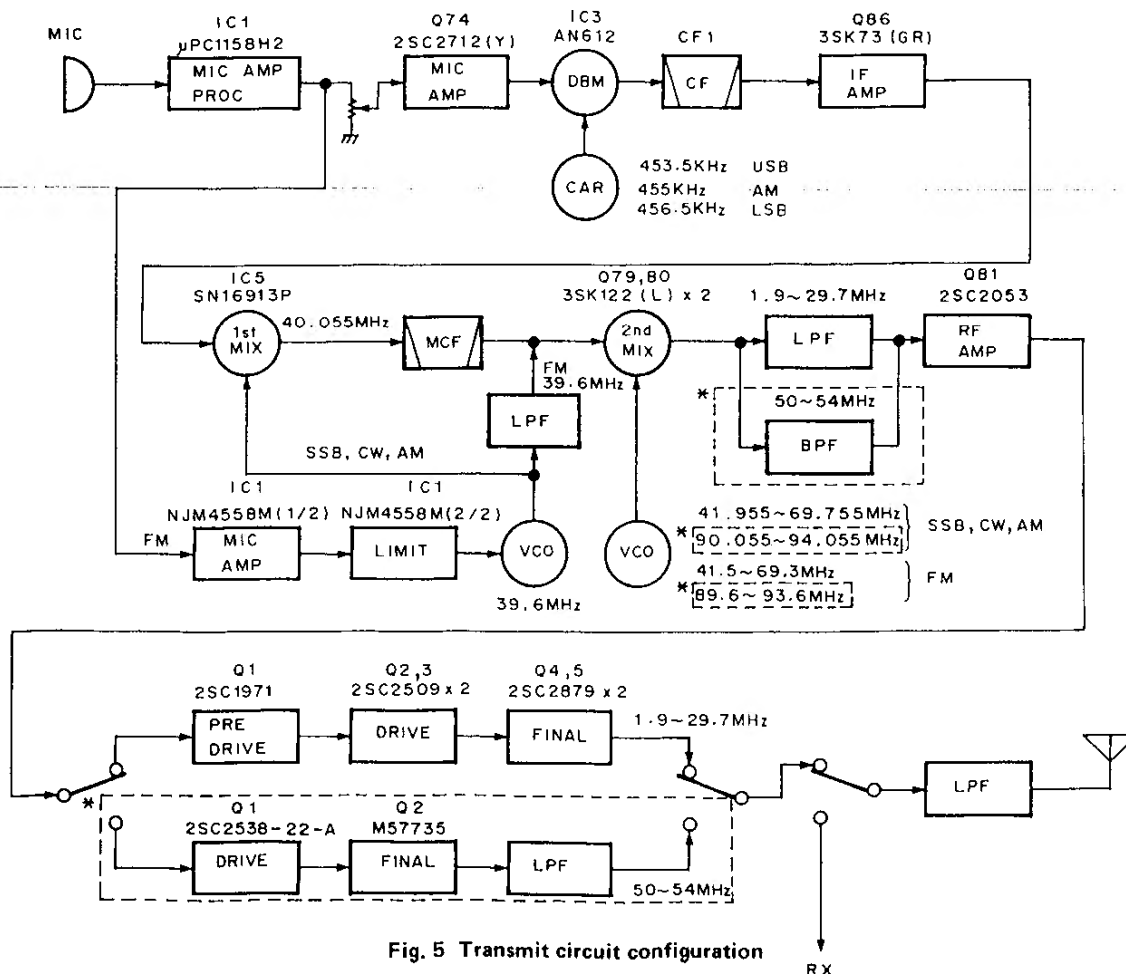


Fig. 5 Transmit circuit configuration

CIRCUIT DESCRIPTION

In FM the output of the MIC amplifier, IC1 of the switch unit, enters the signal unit FM MIC amplifier module (X59-3000-02). This module also functions as the MIC amplifier, limiter circuit, and low-pass filter circuit. The output enters the control unit from the FMM terminal and modulates the 39.6MHz oscillator, VCO4. In modes other than FM, the power of the FM microphone amplifier module is not turned on, and therefore modulation is not affected.

The 39.6MHz signal from the control unit to the signal unit is the HET signal for SSB, AM, and CW modes and the first IF frequency in the FM mode. The IF frequency which enters the signal unit is amplified by IF amplifier Q78. Q78 is the ALC controller. The second gate of Q78 has a fixed bias in modes other than FM, therefore ALC does not function.

The output from Q78 (3SK73GR) passes through switching diodes D101, D102, and D124, a low-pass filter, and is delivered to the final mixer (the second mixer in modes other than FM). Since the IF frequency in the FM mode is different from that in the other modes, the frequency is corrected by the final VCO.

The signal is converted into an actual transmit frequency by the final mixer and passes through the IF trap (40.055 MHz) and low pass filter, is amplified by RF amplifier Q81, and passes through output transformer L111 to become the driver output.

The driver output from the signal unit now enters the final unit.

The output is amplified by final unit transistors Q1, Q2, Q3, Q4 and Q5 to generate a 100W final output. Then enters the filter unit.

The final unit output passes through the transmit/receive switching relay, K16, and individual low-pass filters for each band, and is then applied to the antenna terminal.

The ALC is detected by the output section of the low pass filter.

*The 50MHz band signal is separate from the HF band signal after it passes through the IF trap. This signal for the 50MHz band passes through switching diodes D104, and D106 and a band-pass filter. It is then amplified by RF amplifier Q81 (2SC2053), which is shared by the HF bands. Then the signal passes through the output transformer L11, enters the final unit, and is split from the HF path by relay K1. The signal is then applied to the filter unit. This signal is amplified to the required level by the drive amplifier (Q1) and power module Q2. It passes through the low pass filter, and is supplied to the antenna.

Standby Control Circuit

To switch between transmit and receive for full break-in, or for AMTOR/Packet use, the microprocessor sends various timing signals to control the transmit/receive circuits.

When the standby signal SS from the Standby switch is applied to the microprocessor, three signals are generated, CTX, RB, and CKY. Signals TXB, RXB, and RL are generated based upon these signals to operate the transmit/receive circuit.

The role of each of these signals is describe below:

SS: Reference signal to control each signal (standby switch, PTT switch, and key input)

CTX: Control signal from the microprocessor to generate TXB

RB: Control signal to mute the receive signal line

CKY: Control signal for keying

TXB: 8V line for the transmit circuits

RXB: 8V line for the receive circuits

RL: 13.8V line for the transmit circuits

CKB: 8V line for keying generated by CKY

The signal timings are shown in the figure 6.

The timing after the standby switch is switched to transmit and until the system return to the receive state is as follows:

1. When SS goes low, the microprocessor judges whether the frequency is transmittable or not. If so, the microprocessor switches CTX high 10ms after SS goes low.
2. Module unit (X59-3340-00) receive the CTX signal, and causes TXB and RL to go high.
3. CKY goes high 2ms after TXB goes high, CKB is driven to generate the keying voltage.
4. The transmit signal is emitted approximately 7ms after the CKB is actuated.
5. To return to receive, the transmit signal stops approximately 7ms after the SS line goes high, and TXB and RL return low, as RXB goes high.
6. The RB voltage used for turning on the receive signal line goes high 12ms after RXB goes high, and a signal is received.

FOR SERVICE MANUALS

CONTACT:

MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

CIRCUIT DESCRIPTION

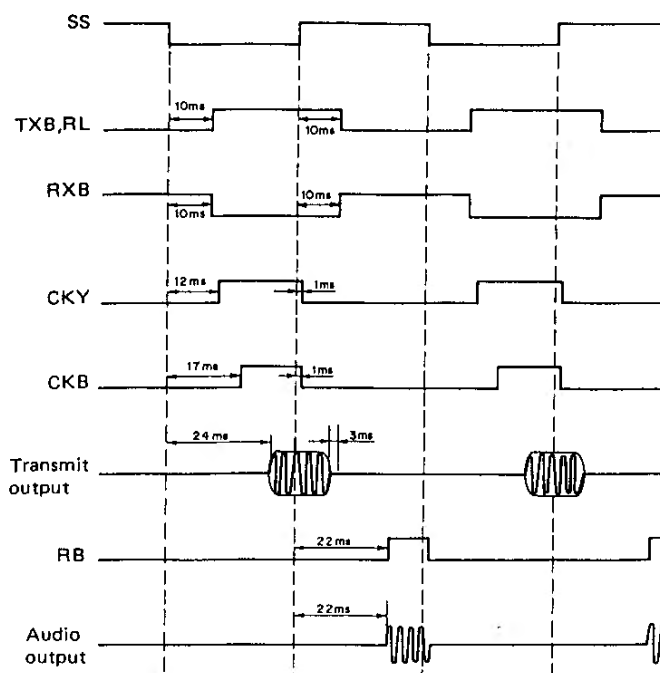


Fig. 6 Transmit/Receive timing chart

Break-in Operation

Manual keying

When the standby switch is turned ON, the base of Q90 (2SA1162Y) goes low, and Q91 (DTC114EK) turns on. CSS goes low, and CTX from the microprocessor turns on Q4 (DTC114EK) of the module unit (X59-3340-00). RL is emitted from Q1 (2SA1204Y), and TXB is applied from Q2 (2SA1204Y). Microprocessor output CKY turns on Q5 (DTC114EK) of the module unit (X59-3360-00), causing the emitter of Q7 (DTC114TK) to go to ground. One end of the Q7 collector is connected to Q87 (2SA1162Y) of the signal unit (X57-3190-00), and the other is connected to the key jack from Q84 (DTC114EK) from the COM terminal via the break-in changeover switch.

Q87 (2SA1162Y) is turned on and produce the CKB voltage when the key is closed, and Q86 (3SK73GR) of the send IF amplifier is keyed.

Semi-Break-In Keying

CW8 is applied to the base of Q84 and Q99. Therefore, they are ready to turn on when the emitter is connected to ground.

When the key is closed, the SEM terminal of the module unit (X59-3360-00) is connected to ground through Q99 and Q84 keys.

Q6 and Q2 in the module unit turn on, and trigger one-shot multivibrator IC1 (MB74LS122). A pulse is output from pin 8 to turn Q1 on and connect the SS line to ground.

When the key is closed, the IC8 output pulse returns to a low level and the SS line goes high after a time constant determined by setting of the VOX delay control VR7 and C254.

The key line switches Q87 via the COM terminal at this same time, and keys Q86 in real time.

Full Break-In

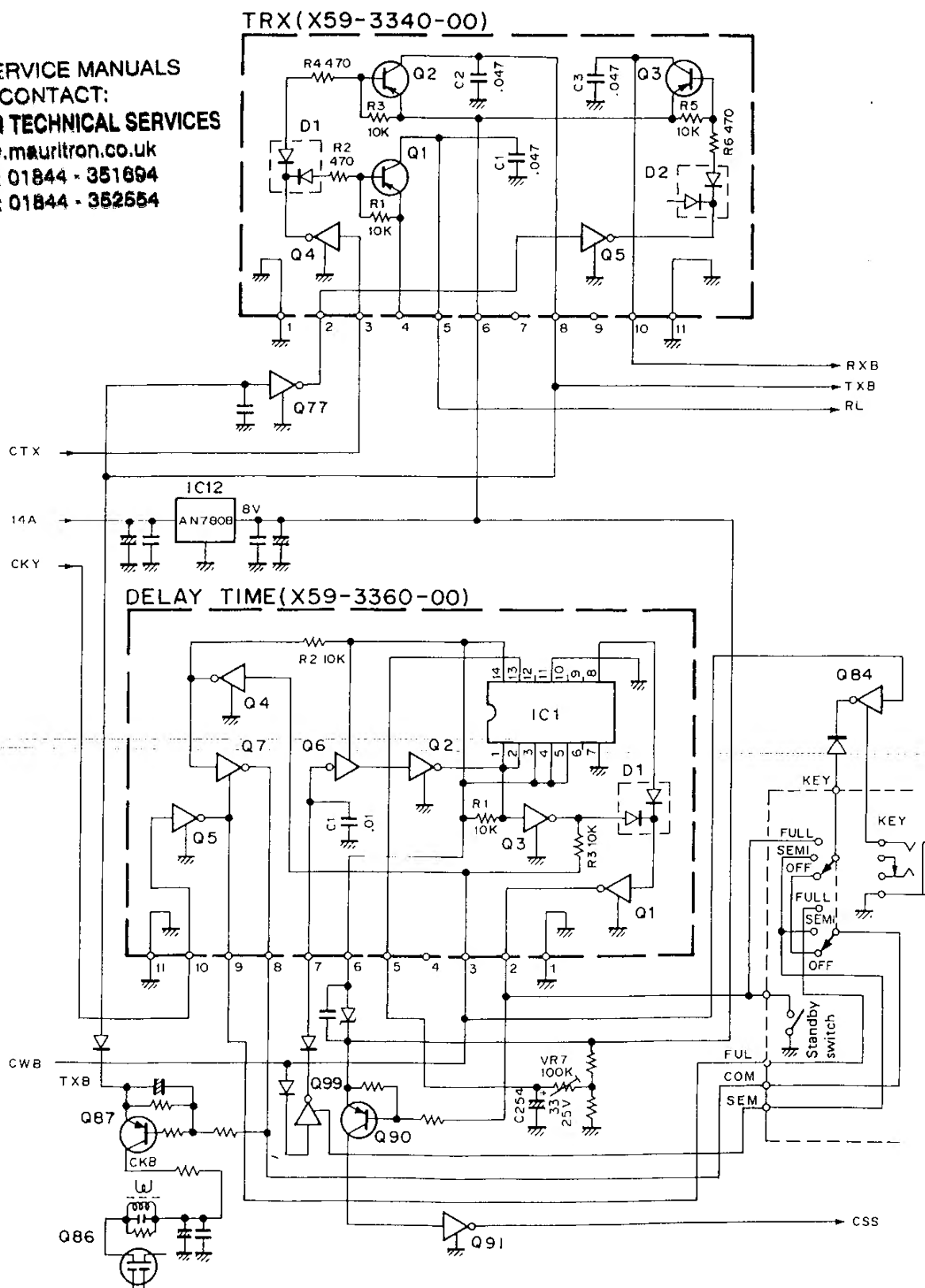
The key connects to the SS line and has the same function as the standby switch. When the key is closed, Q84 turns on, the base of Q90 is connected to the ground, Q91 is turned on, and CSS is switched low. The TXB and RL voltages are generated by the CTX signal, and the CKB voltage is used to generate the CKY signal voltage just as in manual keying.

Full break-in is different from manual keying in that the base of Q87 is controlled directly by the key in manual keying. In full break-in Q87 is controlled via Q5 and Q7 of the module unit (X59-3360-00) by the CKY signal from the microprocessor by turning the SS line on and off.

The reason is that in full break-in, the timing the transmit signal is set so that the radio signal is transmitted after the control signal is completely switched and the transmit system become stable; control is passed to receive after the signal stops, a receive signal is output, and the receive system becomes stable.

CIRCUIT DESCRIPTION

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554



CIRCUIT DESCRIPTION

ALC Circuit

A new ALC circuit is used to control the output according to the selected mode.

The output in the HF band is 100W for the CW mode, 110W for the SSB mode, and 50W for FM. therefore, the ALC detection voltage is different for each mode. CW is used as the standard reference mode. The gain of IC11(3/4), in the ALC circuit, is varied according to the mode and transmit power. For example, since the output in FM is 50W the gain of IC11(3/4) must be increased by 3dB, with respect to the CW reference, to correct any deficiencies in the feedback voltage.

*Since the 50MHz band has only 10 watts output the gain of IC11(3/4) is increased by 10dB.

IC11(1/4) controls the ALC and power. IC11(1/4) functions as a differential amplifier in which the signal from IC11(3/4) enters the negative terminal and the power control voltage enters the positive terminal. As the transmitter output increases, the voltage at the negative terminal increases, and the output from IC11(1/4) decreases. When this output falls below the ALC reference of 2.5V, ALC action will begin.

The power is controlled by changing the voltage at the positive terminal of IC11(1/4). For the AM and CW modes the power is fixed at its maximum full power state since the center of VR2 (PC2) is held open.

The power control voltage (PCV) changes with power, voltage and temperature. When the power, or voltage rises, the PCV is limited by zener diode D116 to avoid excessive

power output. When the voltage falls, the power is increased. As the temperature rises, the resistance of thermistor TH4 decreases, and the PCV rises, but excessive power output is prevented by the (negative) temperature coefficient of the zener diode. When the temperature falls, the PCV is reduced by the thermistor, and power is reduced.

The drive level is also controlled in the FM mode. The input to IF amplifier Q78 (HET amplifier in modes other than FM) is controlled by PIN diode D96. The capacitor connected in parallel is provided to gain the minimum drive level at the maximum power.

VSWR Protection Circuit

To determine a time constant for the reflected wave, the reflected wave voltage is amplified by IC11(2/4) and applied to IC11(3/4) to provide protection.

Temperature Protection Circuit

The temperature detection circuit of the final unit is made modular to reduce its size. The surface temperature of the radiator is as follows:

Cooling fan start	50 deg C
Cooling fan stop	45 deg C
Temperature protection start	80 deg C
Temperature protection stop	70 deg C

When the temperature protection operates the ALC voltage and the power fall. The system does not return to the receive state.

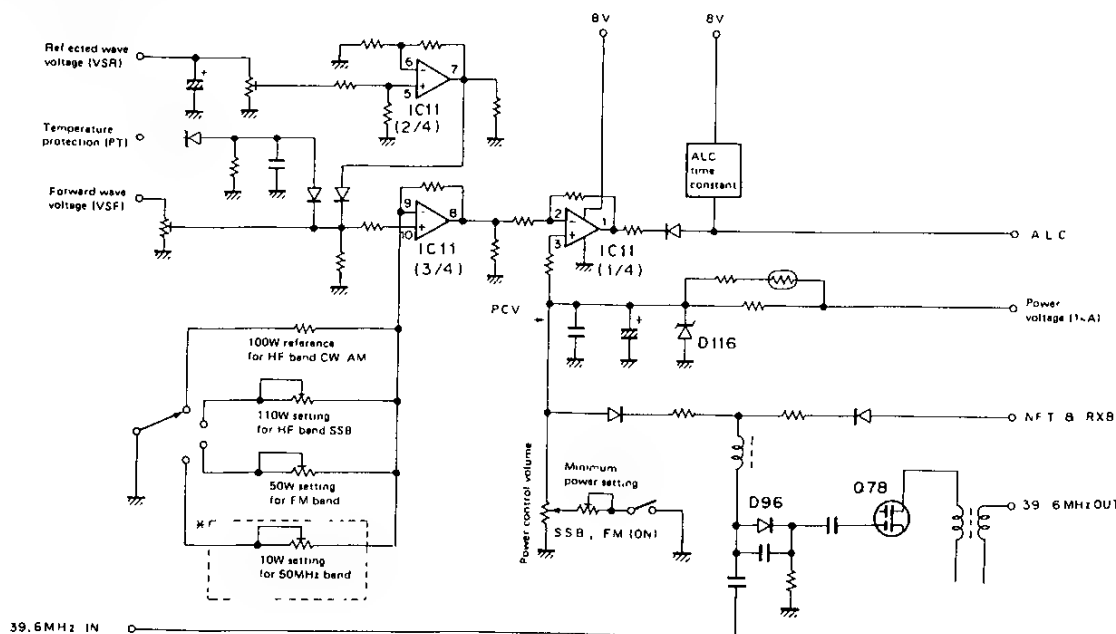


Fig. 8 ALC and power control circuit

CIRCUIT DESCRIPTION

Speech Processor Circuit

The SWITCH UNIT (A/4) IC1 is an audio type speech processor which also function as the first stage microphone amplifier. When the processor switch is OFF, the switch unit operates as a 20dB microphone amplifier. When the processor switch is ON, it operates as an ALC controlled amplifier with ALC with a maximum gain of 40dB.

The compression is set to approximately 20dB when the input signal to the MIC terminal is 10mV

When the processor switch is ON, 8V DC is applied to the base of the gain adjustment switching transistor. Simultaneously the feedback amplifier begins operating.

When the switch unit is put on stand-by remotely data from terminal units connected to accessory terminal number 2 (such as packet, and AMTOR) Q2, Q3, and are turned ON, the microphone circuit is muted, the terminal is switched low, thus stabilizing the transmission.

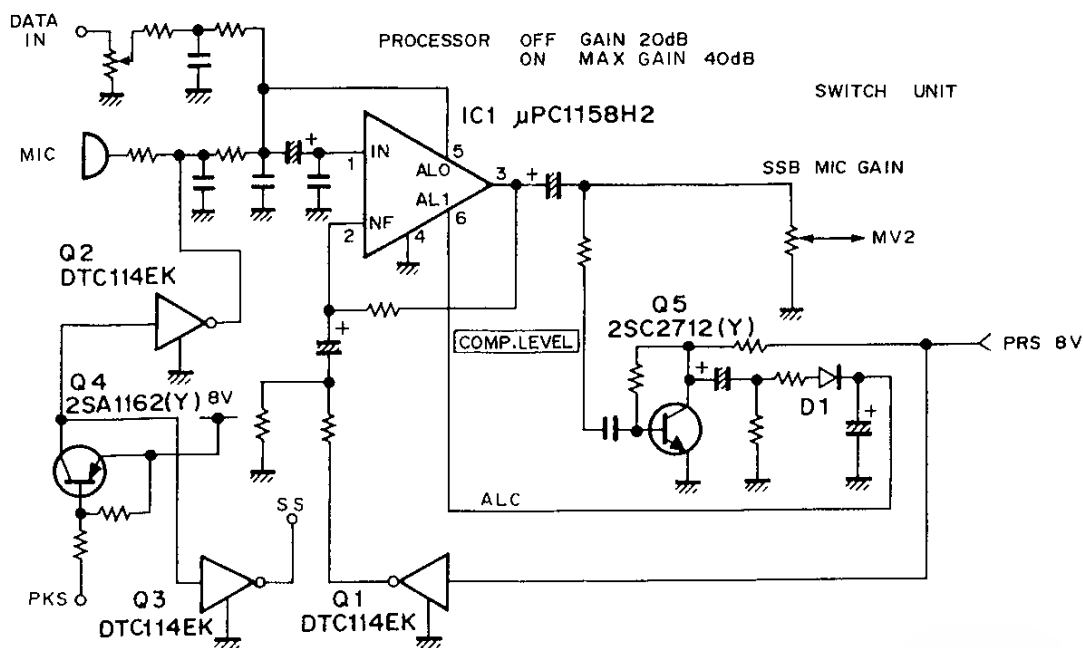


Fig. 9 Speech processor circuit

PLL Circuit

The TS-140 PLL circuit consists of three PLL loops which cover 500kHz to 30MHz in 10Hz steps with a reference frequency of 36MHz.

*The PLL circuit consists of four PLL loops, including 50MHz to 54MHz.

The carrier frequency is inserted into the PLL loop to provide the IF shift function. The carrier circuit PLL loop and the HET circuit PLL loop that always generates a 39.6 MHz frequency are also included. Division ratio data to these PLL loops controlled by the microprocessor. A single crystal frequency management method, in which phases are compared with that of a reference frequency f_{STD}, is used for this transceiver.

The block diagram of the PLL circuit is provided in figure 10.

The reference frequency f_{STD}, which is used as a basis for TS-140 frequency control, is generated by a 36MHz crystal and oscillator Q9 (2SC2787/L). The f_{STD} passes through buffers Q10 and Q12 (2SC2668Y), enters IC10 (SN16913P), passes through a LPF, and enters IC11 (SN16913P). This signal passes through buffer Q11 (2SC2668Y), and is divided by 8 in IC8 (M74LS93P) to generate a 4.5MHz signal. This signal passes through a LPF and enters IC9 and IC11 (SN16913P) in the main loop. The signal passes through a LPF, and becomes the 4.5MHz reference frequency, f_R, for each PLL circuit.

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

CIRCUIT DESCRIPTION

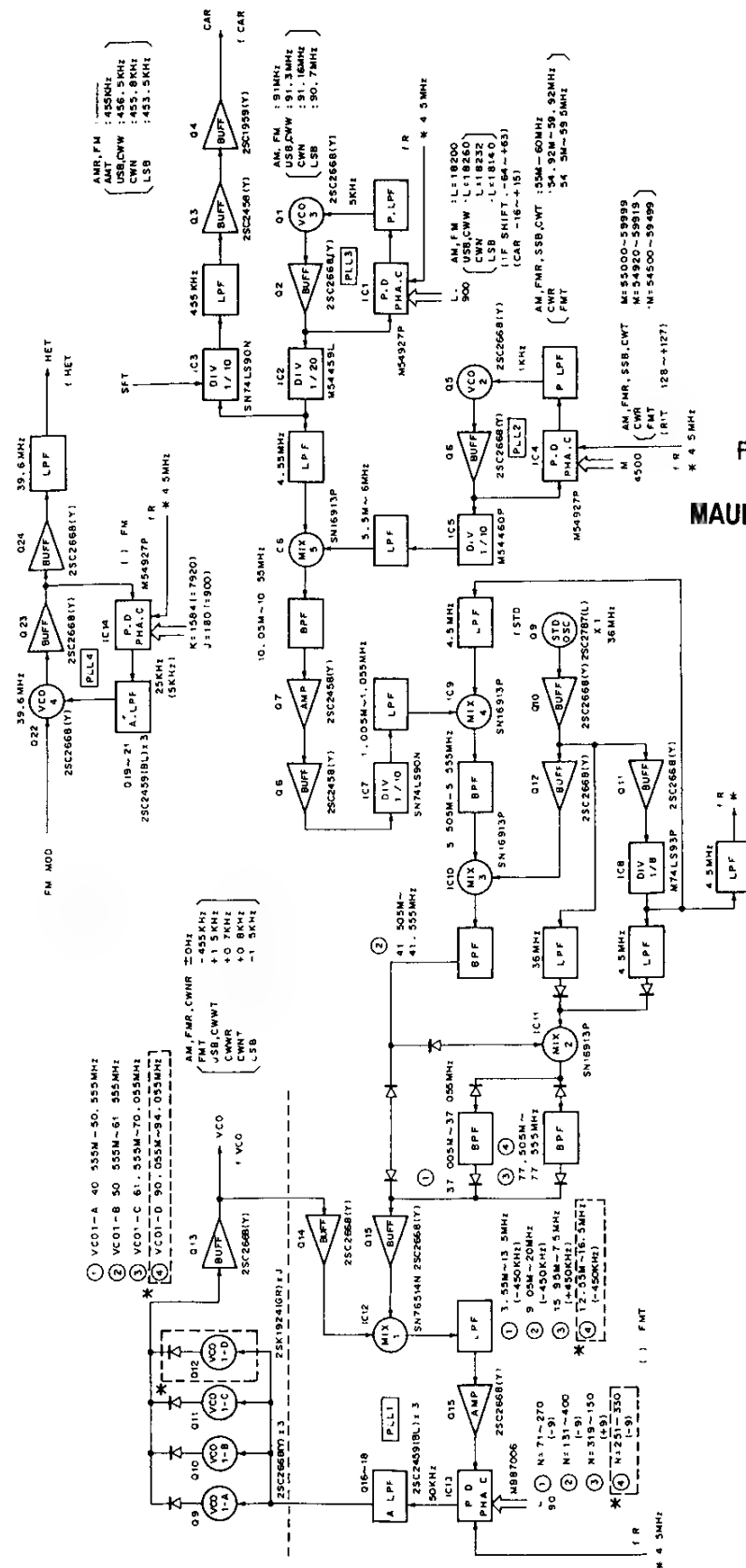


Fig. 10 PLL block diagram

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

CIRCUIT DESCRIPTION**PLL4**

PLL4 consists of IC14 (M54927P), and VCO4, Q22 (2SC2668Y), is locked at 39.6MHz. The 4.5MHz reference frequency, f_R , is applied to IC14 pin 15, and is divided internally by 180 (900 for FM) to generate a comparison frequency of 25kHz (5kHz for FM). The from VCO4 output passes through buffer Q23 (2SC2668Y), applied to IC14 pin 3, and divided internally by 1584 (7920 for FM). The resulting signal is compared with the 25kHz (5kHz for FM) reference signal by the phase comparator, thus locking VCO4. Division ratios K and J are transmitted from digital control circuit via DA, CK, and PR4.

The output from PLL4 passes through Q24 (2SC2668Y) and a LPF and is fed into the signal unit as the HET signal.

PLL3

PLL3 consists of IC1 (M54927P), and VCO3, Q1 (2SC2668Y), is locked at about 91MHz with a frequency that varies with the mode.

The 4.5MHz reference frequency, f_R , is applied to IC1 pin 15, and divided internally by 900 to generate a 5kHz comparison frequency. The output from VCO3 passes through buffer Q2 (2SC2668Y), is applied to IC1 pin 3, and multiplied internally by the division ratio (about 1/18200) determined according to the mode. The resulting signal is compared with the 5kHz reference signal by the phase comparator, thus locking VCO3. Division ratio L is transmitted from the digital control circuit via DA, CK, and PR3.

The PLL3 output is divided by 20 in IC2 (M54459L), and directed to two circuits. One signal enters IC3 (SN74LS90N) of the carrier circuit, is divided by 10, passes through a LPF, buffers, Q3 (2SC2458Y) and Q4 (2SC1959Y) and fed into the signal unit as a carrier signal. During AM reception and AM/FM transmission, IC3 operation is stopped by the SFT data signal to remove the carrier signal.

The other signal is divided by 20, passes through a LPF, and enters MIX5 IC6 (SN16913P) in the main loop, which is part of the digital VFO. Therefore, the operating frequency remains unchanged even if the carrier frequency is changed to implement features, such as USB/LSB mode switching, IF shift, and fine adjustment of the carrier point. IF shift allows a shift of ± 1 kHz or more during SSB and CW receive. The carrier point can be finely adjusted, in the SSB mode, thru a range of ± 400 Hz to ± 375 Hz.

PLL2

PLL2 consists of IC4 (M54927P), and VCO2, Q5 (2SC2668Y), is locked thru a range of 55MHz to 59.999MHz, except in CW receive and FM transmit. The 4.5MHz reference frequency, f_R , is applied to IC4 pin 15, and divided internally by 4500 to generate a 1kHz comparison frequency. The from VCO2 output passes through buffer Q6 (2SC2688Y), is applied to IC4 pin 3, and divided internally by M. The resulting signal is compared with the 1kHz reference signal, by the phase comparator, thus locking VCO2. Division ratio, M, is transmitted from the digital control circuit as division data in 4,999 steps (55,000 to 59,999) corresponding to the range of 0.00kHz to 49.99kHz or 50.00kHz to 99.99kHz via DA, CK, and PR2.

Correction is performed according to the mode and RIT operation. To obtain the 800Hz beat tone obtained during CW reception, M is shifted (54,920 to 59,919) by about 80. Since the VCO1 output frequency during FM transmit is 455kHz lower than that during receive, it is corrected 5kHz (54,500 to 59,499) by VCO2 (450kHz is corrected by PLL1). When the RIT is operating, the M division ratio is varied so that the from VCO1 output frequency is shifted ± 1.2 kHz or more.

In AM and FM modes, the frequency is shifted 10 steps, and operates in 100Hz steps as shown in the frequency display.

The PLL2 output is divided by 10 in IC5 (M54460L), passes through a LPF, and is applied to pin 2 of MIX5 IC6 (SN16913P). The signal is mixed with the signal generated by PLL3, passes through a BPF, and become a signal of 10.05MHz to 10.5499MHz, in 100Hz steps. The signal passes through amplifier Q7 (2SC2458Y), buffer Q8 (2SC2458Y), is divided by 10 in IC7 (SN74LS90N), passes thru a LPF, and is applied to pin 2 of MIX5 IC9 (SN16913P). The signal is mixed with the 4.5MHz signal generated by dividing the reference frequency by 8 in MIX4 (SN16913P), passes through a BPF, become a signal of 5.505MHz to 5.55499MHz in 10Hz steps, and is applied to pin 2 of MIX3 IC10 (SN16913P). In addition, the signal is mixed with the 36MHz reference frequency by MIX3, passes through a BPF, and become a signal of 41.505MHz to 41.50499MHz.

FOR SERVICE MANUALS**CONTACT:****MAURITRON TECHNICAL SERVICES**

www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

CIRCUIT DESCRIPTION

PLL1

The final PLL1 loop consists primarily of IC13 (MB 87006). The final VCO1 is located in the signal unit, and consists of three VCOs, VCO1A to VCO1C, that cover a dial frequency of 500kHz to 30MHz. (*The final VCO1 consists of four VCOs, VCO1A to VCO1D, in the range of 50MHz to 54MHz.) Any of the VCOs can be selected according to band information from the digital control circuit. The VCO1 signal passes through buffer Q13 (2SC2688Y) of the signal unit, and is applied to the PLL circuit of the control unit. This signal passes through buffer Q14 (2SC 2668Y), and is applied to pin 5 of MIX1 IC12 (SN76514N). The signal is mixed with the signals generated by PLL3 and PLL2. This input signal is also divided into three signals according to band information.

One of the signals generated in the previous loop is applied directly to buffer Q13 (2SC2668Y) by the diode switch according to the band information. The other signal is applied to pin 2 of MIX2 IC11 (SN16913P). When the operating frequency is 500kHz to 10.5MHz, the signal is mixed with the 4.5MHz signal generated by dividing the reference signal by 8 in MIX2, passes through a BPF, become a signal of 37.005MHz to 37.05499MHz, and is applied to buffer Q13. When the operating frequency is 10.5 MHz to 21.5 MHz, the signal is applied directly to buffer Q13 without passing through MIX2. When the operating frequency is 21.5MHz to 30MHz, the signal is mixed with the reference frequency in MIX2, passes through a BPF, becomes a signal of 77.505MHz to 77.55499MHz, and is applied to buffer Q13.

*When the operating frequency is 50MHz to 54MHz, the signal is processed in the same way as the signal for 21.5MHz to 30MHz.

These signals are applied to pin 11 of MIX1 IC12 through buffer Q13. The difference signal passes through a LPF to become a signal of 3.55MHz to 20MHz, passes through amplifier Q15 (2SC2668Y), and is applied to pin 8 of PLL IC13.

The 4.5MHz reference frequency, f_R , is applied to IC13 pin 1, and divided internally by 90 to generate a 50kHz comparison frequency. The signal input to IC13 is divided by N, and compared with the 50kHz reference signal, by the phase comparator. The signal passes through an active LPF, Q16 to Q18 (2SC2459BL), and is sent to the signal unit as the VCO voltage, to control the varactor diode of the last VCO1.

Division ratio, N, covers the overall operating frequency range in 50kHz steps, except during FM transmit. During FM transmit, N is shifted 9 steps (450kHz) so that the VCO1 output frequency becomes -455kHz. The division ratio is sent from the digital control circuit via DA, CK, and PR1.

Therefore, the final output of PLL1 is 40.555MHz to 70.05499MHz (shifted by -455kHz for FM transmission) as determined by the values of L, M, and N, in 10Hz steps

*The final output of PLL is 40.555MHz to 70.05499 MHz or 90.055MHz to 94.05499MHz in 10Hz steps

UNLOCK Detection

If any PLL loop becomes unlocked, pin 11 of IC1, IC4, IC14 and/or pin 7 of IC13 go low, and act as an OR circuit. These signals pass through switching transistors Q25 (DTA 124ES) and Q26 (DTA124ES), and the "L" is sent to the digital control circuit.

At this point, the microprocessor will display the unlock status, and emits the SBK signal to stop the IF signal before the filter via Q29 (2SC2712Y), and the MUTE signal for stopping the audio signal via Q57 (2SC2712Y) before entering the volume control.

50kHz Marker Signal

IC13's 50kHz comparison frequency is emitted from pin 13 and used as a marker signal.

CIRCUIT DESCRIPTION

Digital Control Circuit

Configuration of microprocessor peripheral circuits

As shown in figure 11, the units around microprocessor IC18 (BU18400A) include 16K ROM, IC21 (MBM27C128-25JAJ2), 2K static RAM, IC20 (TC5518CPL), extended I/O IC (TMP8255AP-5, IC22 and IC23 for output only, and IC24 for input only), encoder processing gate array IC26 (LZ92K37), and the microprocessor optional IF-IOC communication IC (μ PD8251AFC). The microprocessor address signal is selected by transmitting the chip select signal from IC19 (SN74LS138N). IC15 (PST520D) generates a reset signal according to changes in the 5V line, to reset the microprocessor, the extended I/O IC, and communications IC. The reset signal is also sent to RAM to prevent data destruction due to shock noise when switching power on and

off. IC16 (TC4069UBP) rectifies the waveform of the reset signal, and also functions as the buzzer oscillator circuit and system clock oscillator circuit. The timer IC, IC17 (NE555C), generates an AC signal for dynamic lighting of the fluorescent display tube, and gives an interrupt signal to the microprocessor. The dynamic lighting function is controlled by the microprocessor. The μ PC6300C is the fluorescent display tube driver IC. IC27 (MB4052) is an A/D converter IC to which a voltage corresponding to the rotational position is applied by a variable resistor such as the RIT. IC25 (TC4069UBP) operates as a chatter absorption circuit for the mechanical-type sub-dial rotary encoder.

Most of these circuit are located in the control unit, but the fluorescent display tube, drive IC (μ PD6300C), and voltage generation DC/DC module (CPS11/5B) are in the display unit.

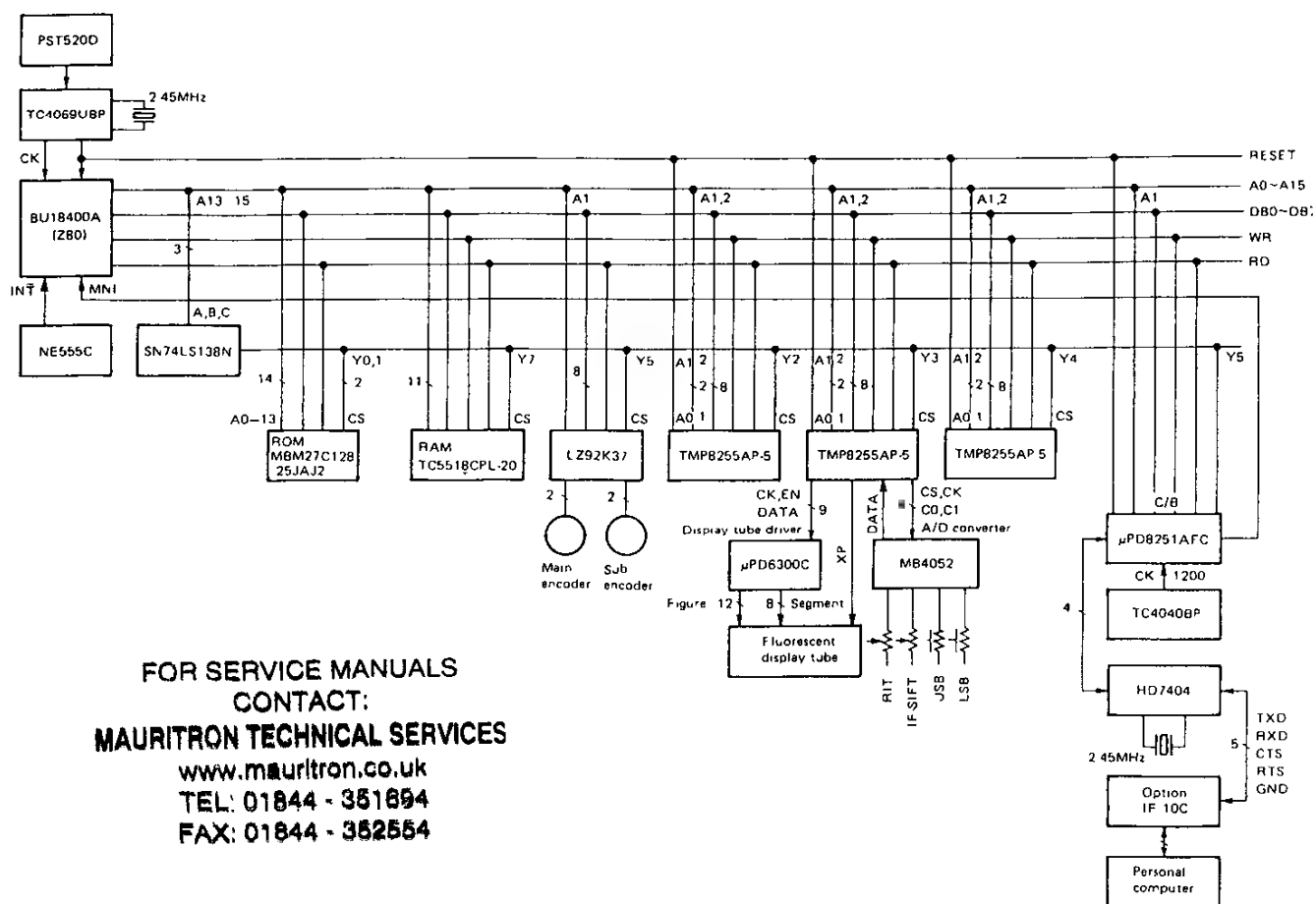


Fig. 11 CPU peripheral circuit

CIRCUIT DESCRIPTION

System Clock Oscillation and System Reset Circuit

Microprocessor IC18 (BU18400A) requires a 2.45MHz system clock. Ceramic oscillator X2 and IC16 (TC4069UBP) are used to generate the system clocks (figure 12).

IC15 (PST520D) is a reset IC which sends a reset signal to the microprocessor and I/O when the power supply voltage reaches about 4.3V, which halts all function immediately. When the power supply voltage exceeds approximately 4.3V, the reset signal is emitted and after the time constant set by R151 and C219 elapses, the microprocessor is initialized and operation resumes (figure 13).

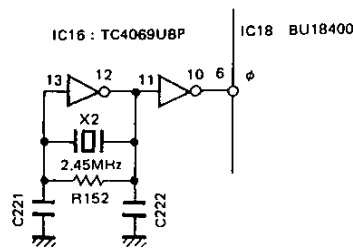


Fig. 12 System clock oscillation circuit

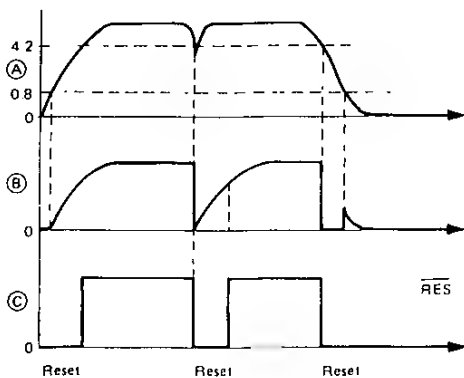
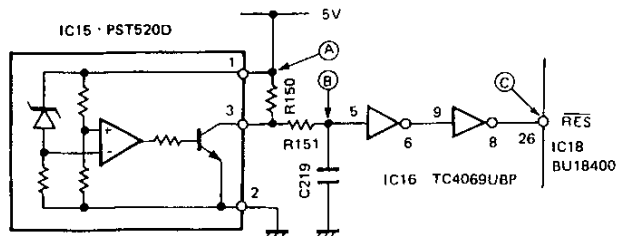


Fig. 13 Reset circuit

Address Control

Microprocessor address lines A0 to A15 cannot select ICs directly, so they are decoded into selection signals by IC19 (SN74LS138N). IC19 has a 64K-bytes memory area which is divided equally into 8 blocks (8K bytes each) and assigned to the ICs. Address control division is shown in figure 14.

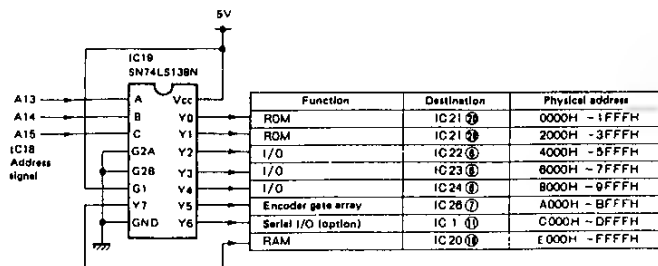


Fig. 14 Address control division

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

CIRCUIT DESCRIPTION

Encoder Peripheral Circuit

IC26 (LZ92K37) detects the rotational direction from the dual-phase rotary encoder pulse input, counts up or down, and has two inputs CK1 and CK2 count all leading and trailing pulse edges, and performs quadruple functions CK3 and CK4 count the leading and trailing edges of CK3, and performs dual functions. The main dial is an optical type, which inputs signals directly. The sub-dial is a mechanical type, which inputs signals through the chatter absorption circuit.

Count data can be read in the same manner as when reading RAM. CK1 and CK2 have one counter, CK3 and CK4 have another counter. When IC26 A0 is low, the CK1 and CK2 data is read. When A0 is high, the CK3 and CK4 data is read.

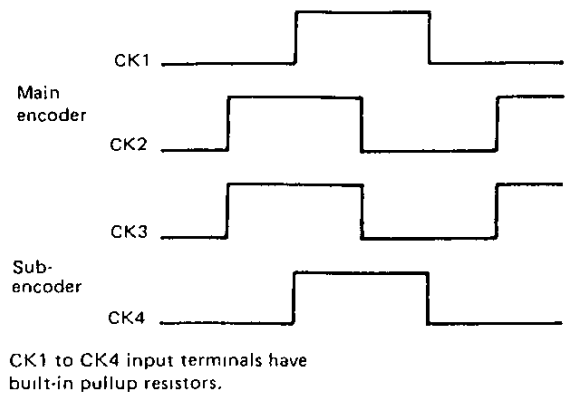


Fig. 16 Waveforms of IC26, CK1 to CK4, when the dial is turned clockwise

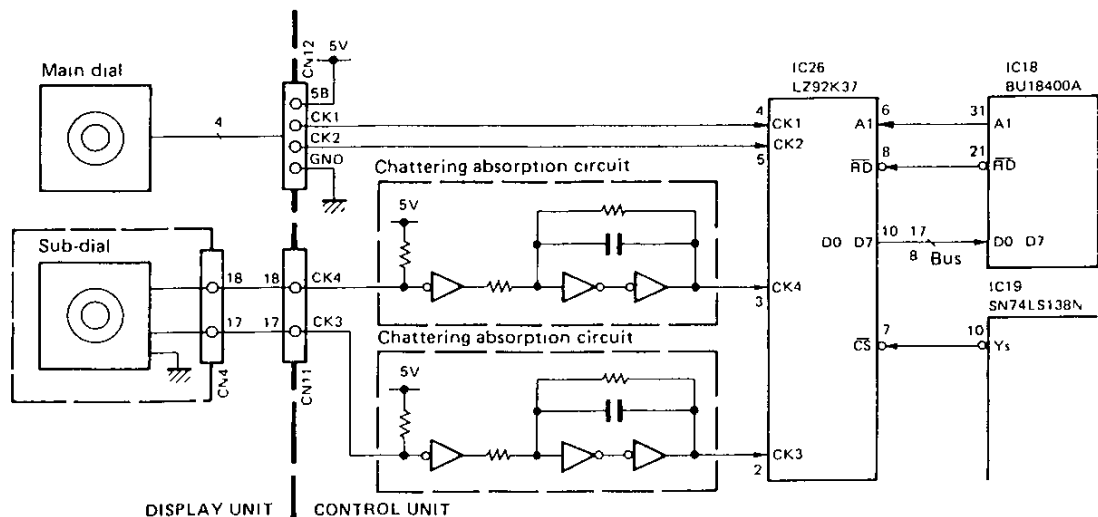


Fig. 15 Encoder peripheral circuit

Display Circuit

The fluorescent display tube is dynamically lit by IC18 (BU18400). The lighting period for one column is given by a negative pulse of IC17 (NE555C). When a low level is applied to the INT input, IC18 starts its interrupt procedure, outputs one column of display data, and the column signal to the fluorescent display tube driver MPD6300C through IC23 (TMP8255AP-5), and outputs data and control signal to the XP terminal, via IC22 port C7. Normally, one cycle ends when the data and signal are output 12 times, since there are 12 columns. However, for yellow (mode) display columns, the data and signal are output 3 times in one cycle because of a lack of sufficient intensity.

Display unit, T1, is the DC/DCE module which generates the drive voltage and filament voltage of the fluorescent display tube. The filament voltage waveform is generated by the oscillator circuit in that module. The frequency fluctuates because the column loads differ from each other, causing a variation in the oscillator frequency. The μ PD 6300C input waveforms are seen in each of the oscillator periods of IC17 (See figure 18). Data is shown in figure 19. It is output from the left.

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

CIRCUIT DESCRIPTION

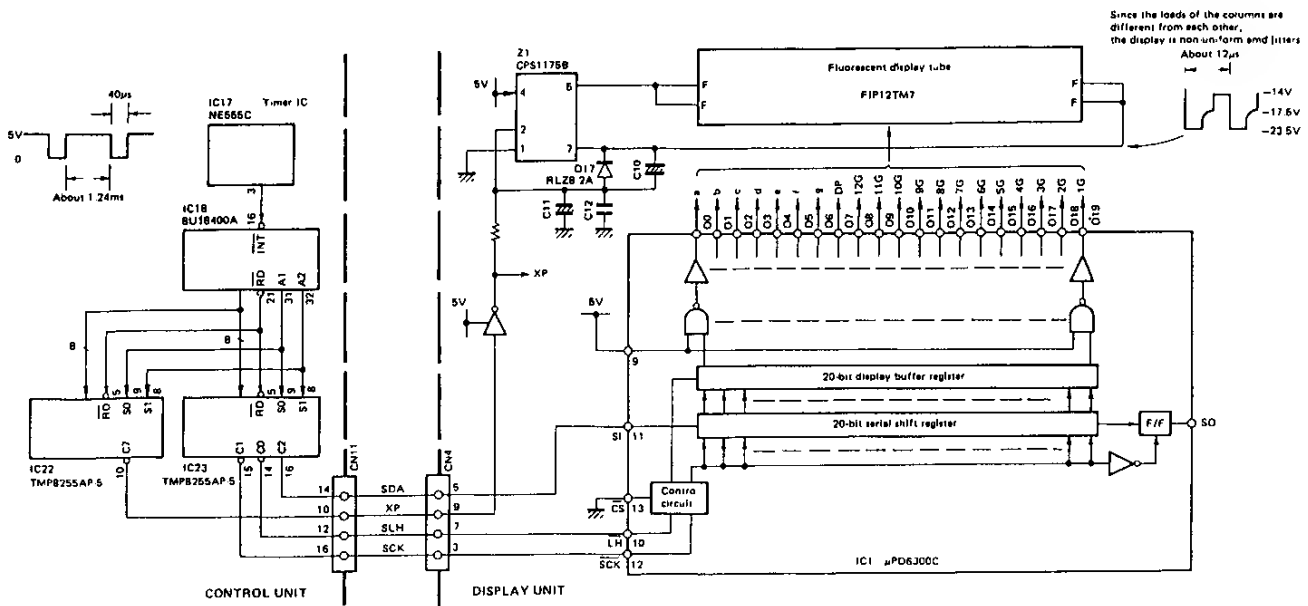


Fig. 17 Display circuit

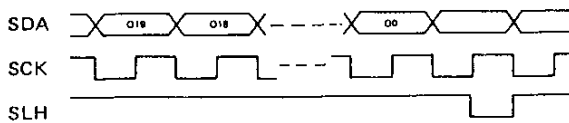


Fig. 18

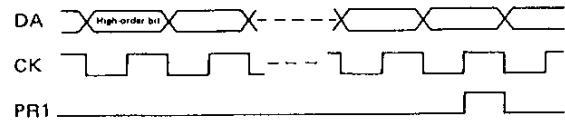


Fig. 20

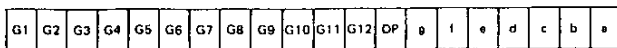


Fig. 19

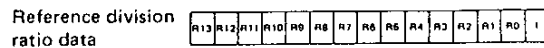
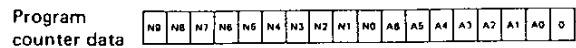


Fig. 21

PLL Data Output

Four PLLs are controlled. The 50kHz-step loop PLL1 uses the MB87006, and other loops use the M54927P.

Data is output for the MB87006 as shown in figure 20.

Both reference division ratio data and program counter data are given to the MB87006. Reference division ratio data are supplied only when the power is turned on. The data formats are as shown in figure 21. Data is output from the left.

Data is output to the M54927P as shown in figure 22.

Data output to the M54927P is shown in figure 23. It is output from the left.

This PLL data is output only to the PLL when changed.

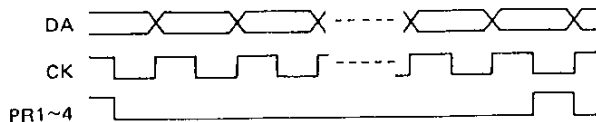


Fig. 22

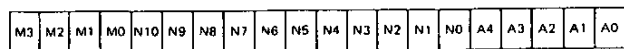


Fig. 23

CIRCUIT DESCRIPTION

Band Output

The BPF and LPF are switched by output ports A0 to A4 (B0 to B4) of IC22 (TMP8255AP-5). The PLLs are switched by output ports C4 to C6 (VB1 to VB3). The levels of the ports in each frequency range are shown in the figure below.

Freq' (MHz)	B4	B3	B2	B1	B0	VB3	VB2	VB1
0 - 0.5	H	L	L	L	L	L	L	H
0.5 - 1.6	H	L	L	L	H	L	L	H
1.6 - 2.5	L	L	L	H	L	L	L	H
2.5 - 4.0	L	L	L	H	H	L	L	H
4.0 - 6.5	H	L	L	L	L	L	L	H
6.5 - 7.5	L	L	H	L	H	L	L	H
7.5 - 10.5	H	L	H	H	L	L	L	H
10.5 - 14.5	L	L	H	H	H	L	H	L
14.5 - 19.0	H	H	L	L	L	L	L	L
19.0 - 21.5	L	H	L	L	L	L	L	L
21.5 - 25.0	H	H	L	L	H	H	L	L
25.0 - 30.0	L	H	L	L	H	H	L	L
50.0 - 54.0	L	H	L	H	L	H	L	L

Table 6

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

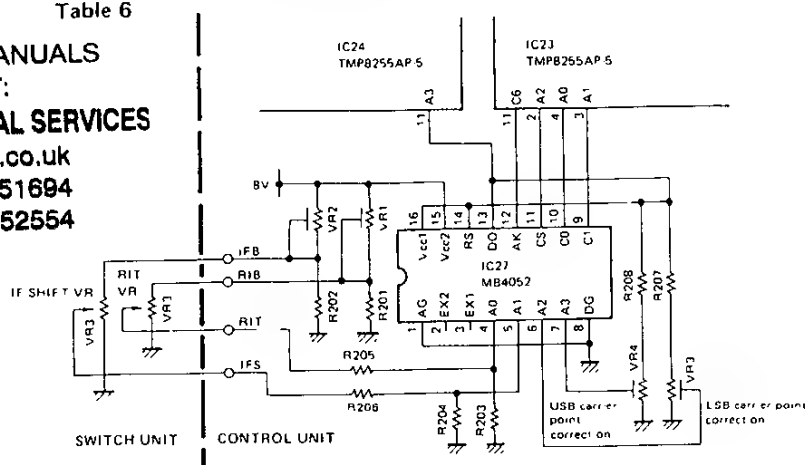


Fig. 24 A/D converter peripheral circuit

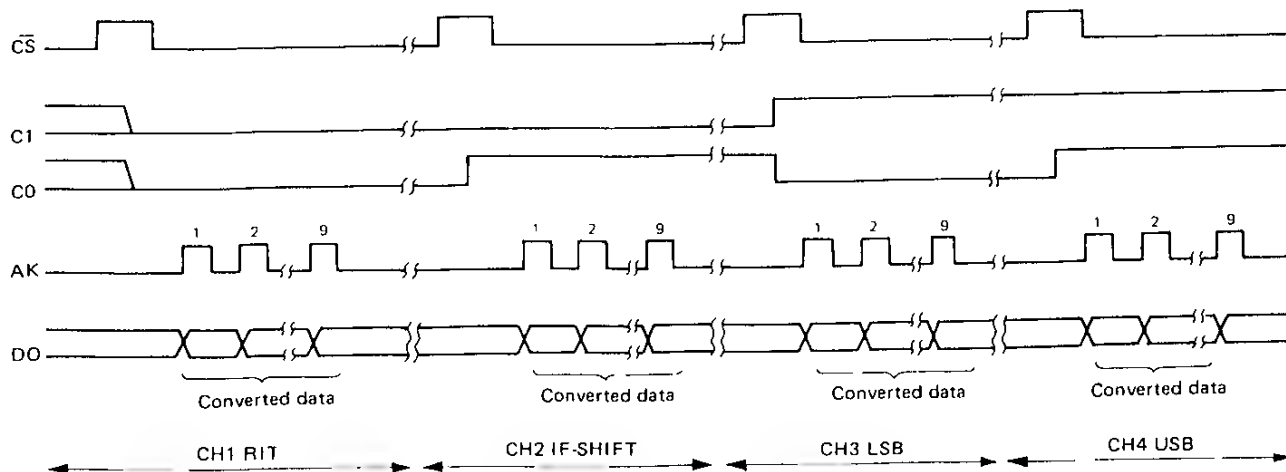


Fig. 25 A/D converter data read timing chart

A/D Converter Analog Input

The four types of analog input, RIT, IF shift, carrier point correction for LSB and USB, are A/D converted, and loaded into the microprocessor as digital values. The control unit has the A/D converter, IC27 (MB4052), to which a channel select signal (CS) and data input control signal (C0 and C1) are applied.

The microprocessor sends a channel select signal first then a positive pulse from the A2 port of IC23 (TMP8255AP-5) to reset the A/D converter IC27 (MB4052). After 9 clock pulses have been sent from IC23 C6 port, the converted digital values are sent from A/D converter IC27 to the C6 port of IC24: TMP8255AP-5 in synchronization with the clock pulses. The A/D converter peripheral circuit and timing charts are shown in figures 24 and 25.

CIRCUIT DESCRIPTION

Key Scan and Extended Diode

A key scan signal with a negative pulse is sent from ports B4 to B7 and C5 of IC23 (TMP8255AP-5). One column, corresponding to ports B0 to B3 of IC24 (TMP8255AP-5) is selected, and the ON/OFF state of the switch is sensed. When the switch at an intersection of the matrix is on, the corresponding bit of ports B0 to B3 of IC24 goes low, thus detecting. The activation of the switch.

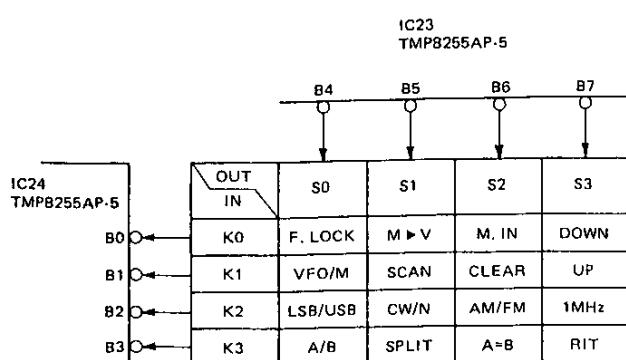


Fig. 26

Transmit Timing Control Signal

The full Break in timing is generated by the microprocessor, and is sent as the CTX, RB, and CKY signals from port C of IC22 (TMP8255AP-5). When transmit/receive switching is detected at port A6 of IC24 (TMP8255AP-5), the CSS signal is output with the following timing

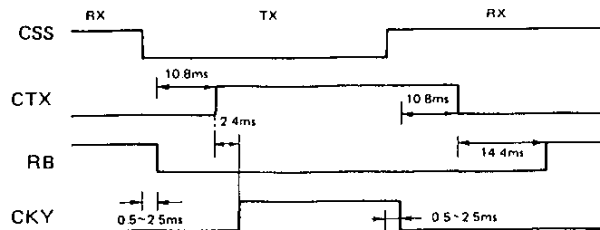


Fig. 27

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

SFT Output

The SFT output signal is output during FM and AM reception, and stops the CAR output.

TOB Output

The TOB output is stored in the memory channel, split channel, in FM mode, and output only during transmission. Repeater subtone control signal.

14V Input

To clear any meaningless display when the power switch is turned on or off, the 13.8V line is monitored. When this input goes low, the display is cleared.

SBK and MUT Output

This signal cuts the PLL switching noise

I/O port functions

1) IC22 (Output only)

Terminal Name	Pin No.	Symbol	Function	Active level
A0	4	B0	Band switching output (See the text.)	H
A1	3	B1		
A2	2	B2		
A3	1	B3		
A4	40	B4	Unused	H
A5	39	50M		
A6	37	HFL		
A7	37	HFL	Mode output	H
B0	18	MUT		
B1	19	PD		
B2	20	SBK		
B3	21	CWN	Indicates CW-N.	H
B4	22	FM	Transmit control signal (See the text.)	H
B5	23	AM		
B6	24	CW		
B7	25	SSB		
C0	14	CTX	Output the subtone (Option)	H
C1	15	RB		
C2	16	CKY		
C3	17	TOB	PLL band switching signal (See the text.)	H
C4	13	PB0		
C5	12	PB1		
C6	11	PB2	Fluorescent display tube red letter segment signal	L
C7	10	XP		

CIRCUIT DESCRIPTION/SEMICONDUCTOR DATA

2) IC23 (Output only)

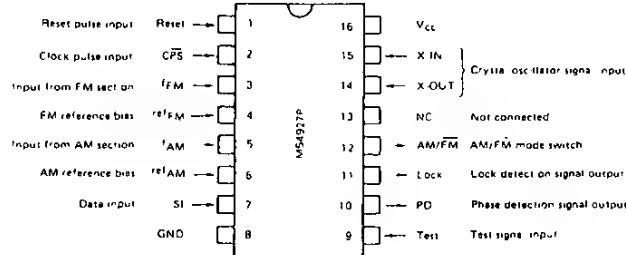
Terminal Name	Pin No.	Symbol	Function	Active level
A0	4	C0	IC27 MB4052 control signal (See the text)	
A1	3	C1		
A2	2	CS		
A3	1	SFT	CAR cut signal	H
A4	40	PR1	PLL enable signal. (See the text)	
A5	39	PR2		
A6	38	PR3		
A7	37	PR4		
B0	18	LF	F LOCK LED signal	H
B1	19	LM	M.SCR LED signal	H
B2	20	L1	1MHz LED signal	H
B3	21		Unused	
B4	22	S0	Key scan output (See the text)	L
B5	23	S1		
B6	24	S2		
B7	25	S3		
C0	14	SLH	Fluorescent display tube drive IC signal	
C1	15	SCK	(See the text)	
C2	16	SDA	(See the text)	
C3	17	EN	Unused	
C4	13	DA	PLL data signal. (See the text)	
C5	12	CK	(See the text)	
C6	11	AK	IC27 MB4052 control signal (see the text)	
C7	10	BZ	Turns the buzzer oscillator circuit on	H

3) IC24 (Input only)

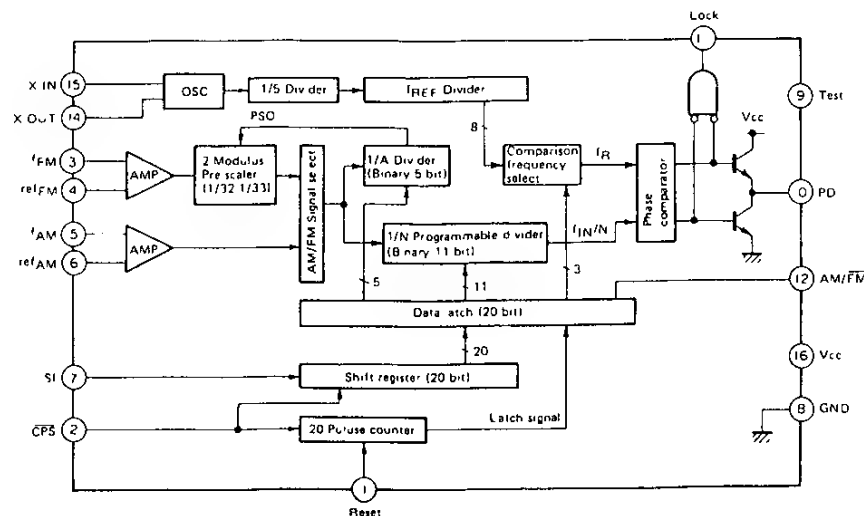
Terminal Name	Pin No.	Symbol	Function	Active level
A0	4		Unused	
A1	3	—		
A2	2	UL	Detect the unlock state.	L
A3	1	AD	IC27·MB4052 data signal.	
A4	40	MU	MIC UP/DOWN switch	L
A5	39	MD		
A6	38	CSS	CSS line signal transmission detection	L
A7	37	14V	Power switch off detection.	L
B0	18		Unused	
B1	19	—		
B2	20	—		
B3	21	—		
B4	22	—		
B5	23	—		
B6	24	—		
B7	25	—		
C0	14	—	Unused	
C1	15	—		
C2	16	—		
C3	17	—		
C4	13	—		
C5	12	—		
C6	11	—		
C7	10	—		

M54927P : PLL IC (Control unit IC1, 4, 14)

• Terminal connection diagram



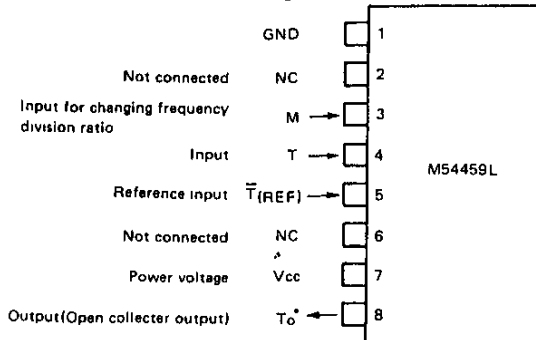
• Block diagram



SEMICONDUCTOR DATA

M54459L : Divider (Control unit IC2)

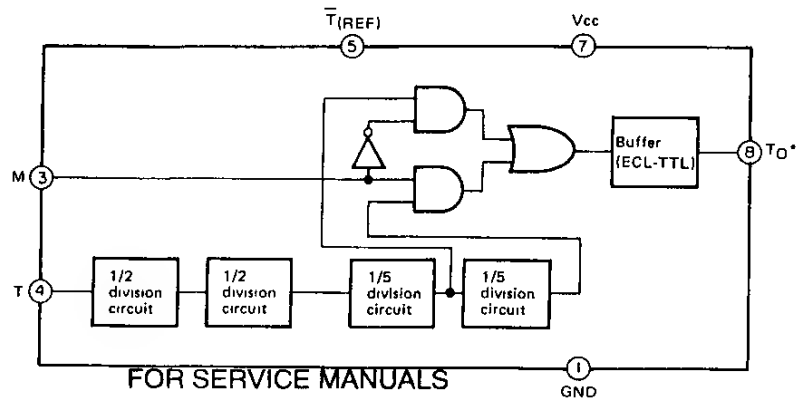
• Terminal connection diagram



• Input for changing frequency division ratio (M) and division ratio

M	"L"	"H"
Division ratio	1/20	1/100

• Block diagram



FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES

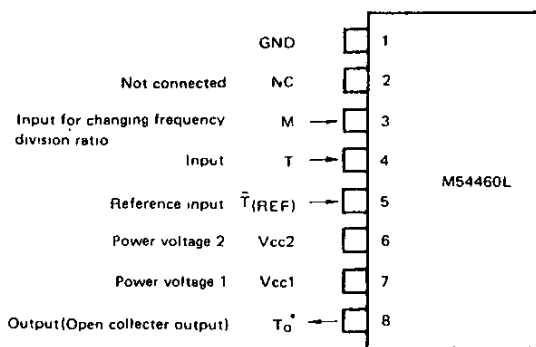
www.mauritron.co.uk

TEL: 01844 - 351694

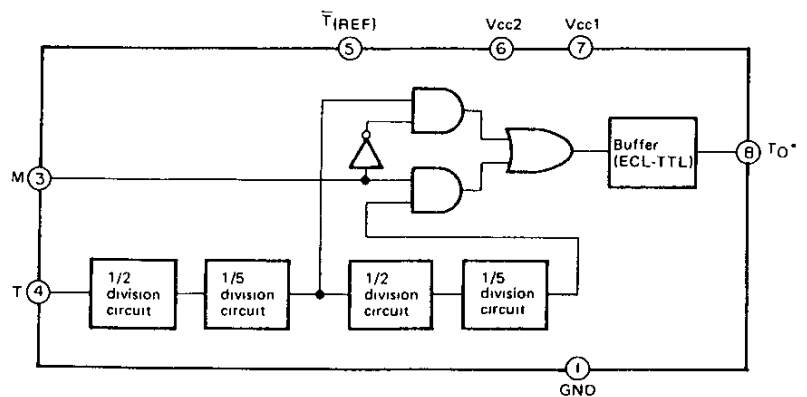
FAX: 01844 - 352554

M54460L : Divider (Control unit IC5)

• Terminal connection diagram

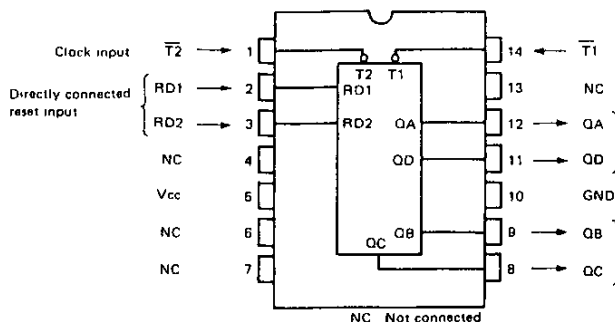


• Block diagram

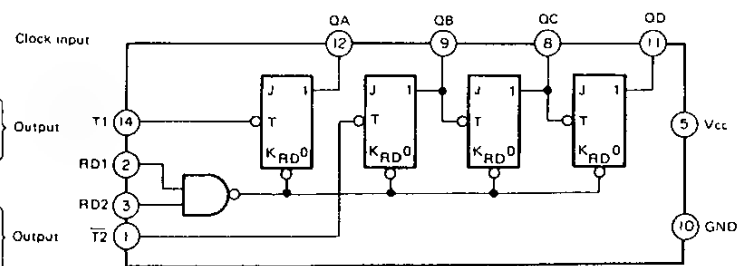


M74LS93P : Divider (Control unit IC8)

• Terminal connection diagram



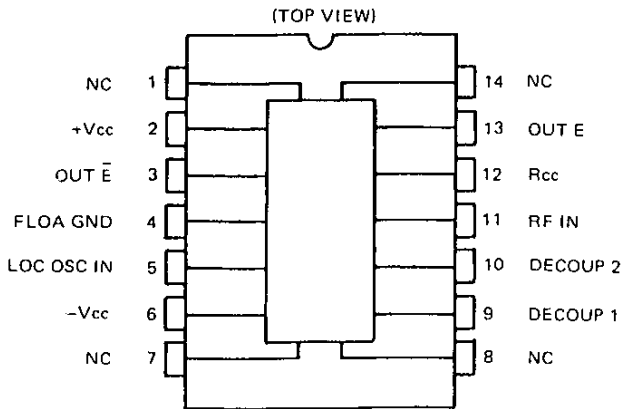
• Logic circuit



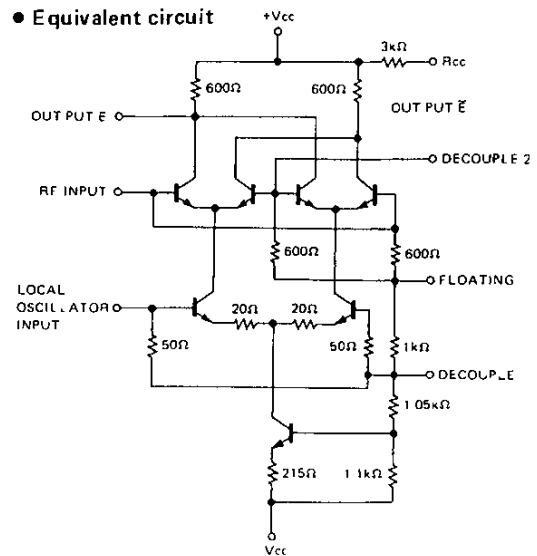
SEMICONDUCTOR DATA

SN76514N : Mixer (Control unit IC12)

• Terminal connection diagram

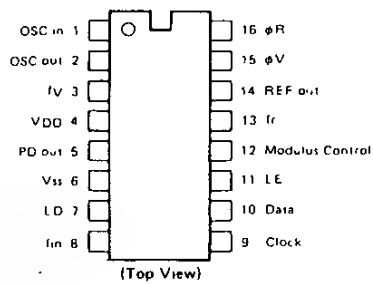


• Equivalent circuit



MB87006 : PLLIC (Control unit IC13)

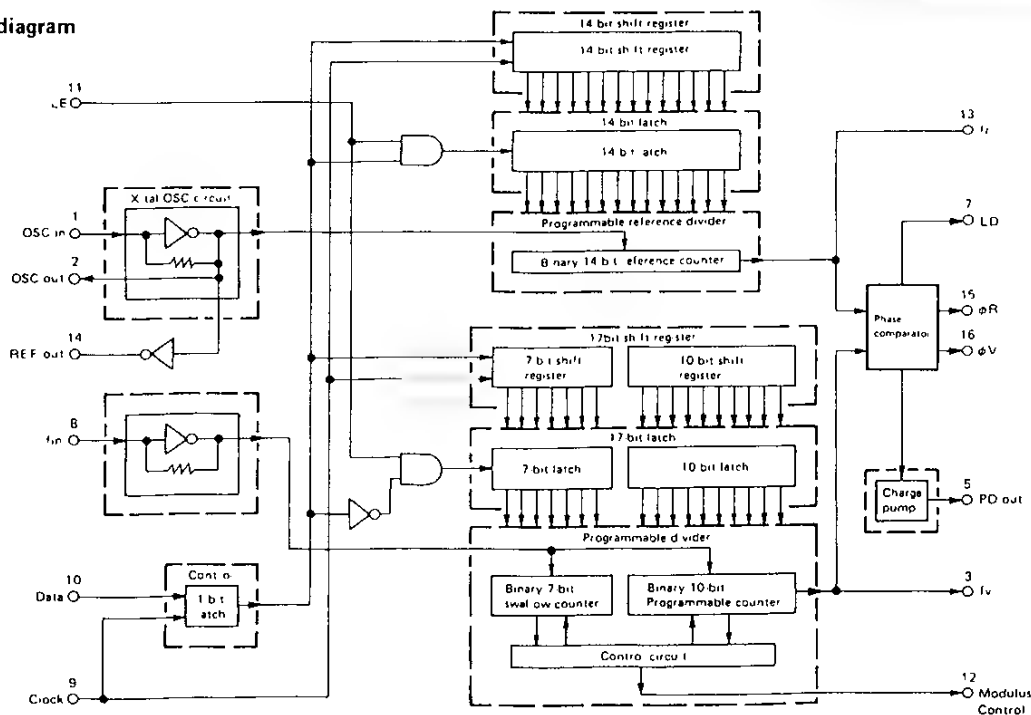
• Terminal connection diagram



• Terminal function

Terminal No.	I/O	Terminal name	Terminal No.	I/O	Terminal name
1	I	OSC in	9	I	Clock
2	O	OSC out	10	I	Data
3	O	fv	11	I	LE
4	~	VDD	12	O	Modulus Control
5	O	PD out	13	O	fr
6	~	VSS	14	O	REF out
7	O	LD	15	O	φV
8	I	fin	16	O	φR

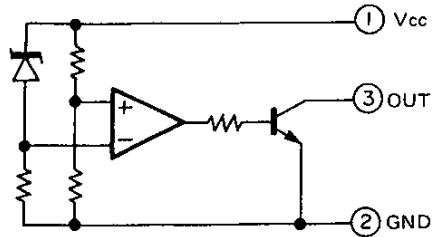
• Block diagram



SEMICONDUCTOR DATA

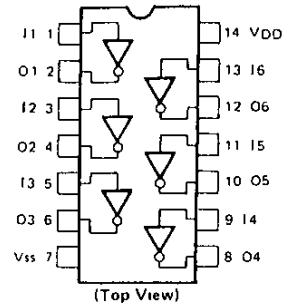
PST520D : System reset (Control unit IC15)

• Equivalent circuit



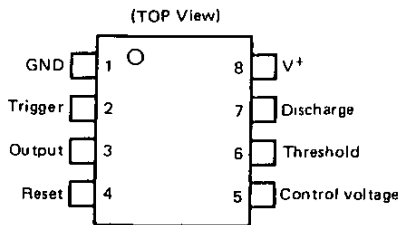
TC4069UBP : Inverter (Control unit IC16,25)

• Block diagram

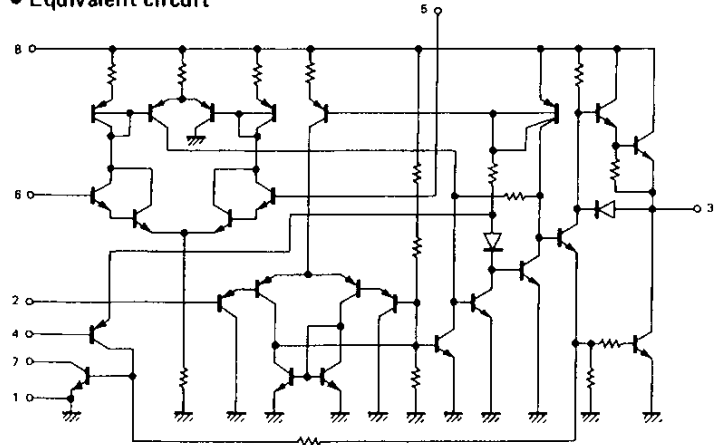


NE555C : System clock oscillator (Control unit IC17)

• Terminal connection diagram

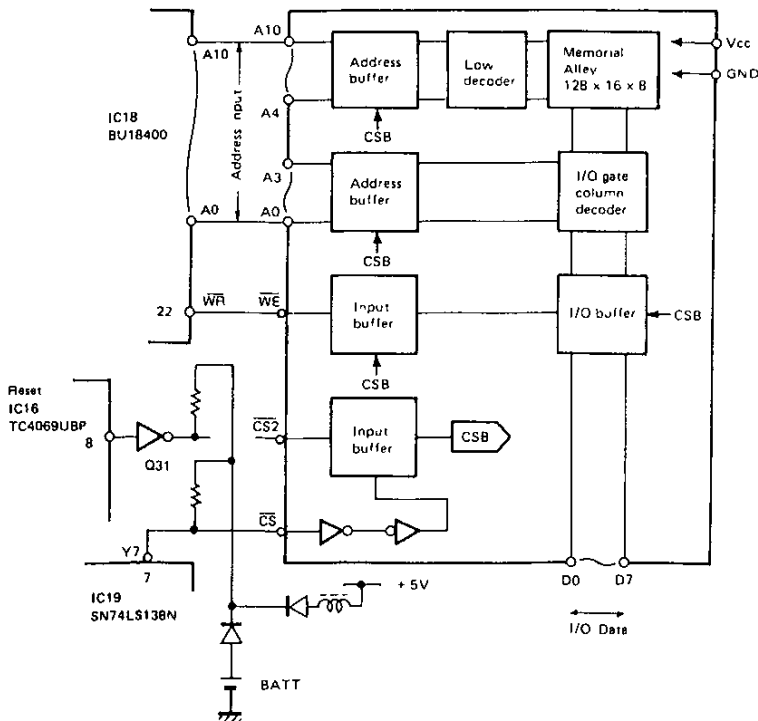


• Equivalent circuit



TC5518CPL-20 : Static RAM (Control unit IC20)

• Block diagram



• Terminal function

Terminal name	Function
A0~A10	Address input
D0~D7	Data input/output
CS	Chip select 1
SC2	Chip select 2
WE	Write enable
Vcc	Power supply (+ 5V)
GND	Ground

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

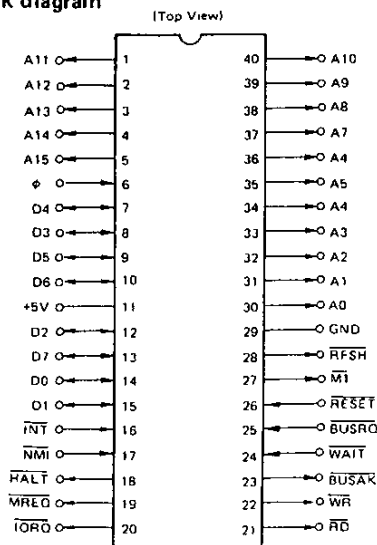
TEL: 01844 - 351694

FAX: 01844 - 352554

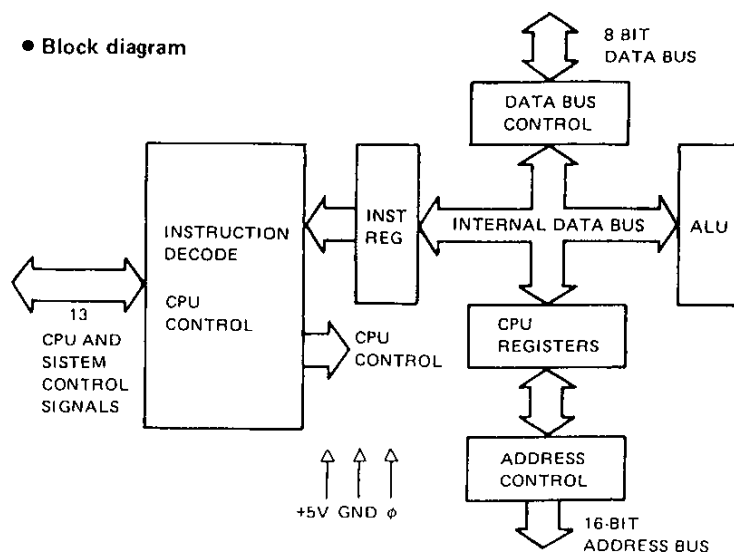
SEMICONDUCTOR DATA

BU18400A : CPU (Control unit IC18)

• Block diagram



• Block diagram



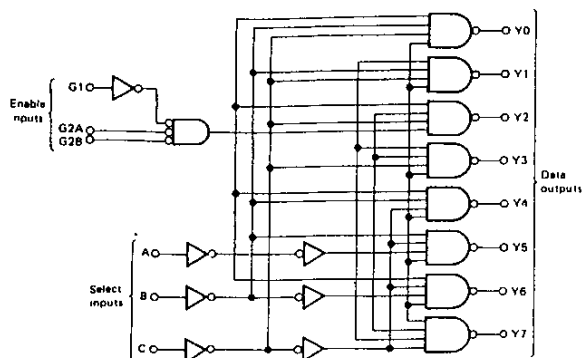
• Terminal function

Terminal (Signal) name	Input/Output	Terminal (Signal) function
A0 ~ A15 (Address Bus)	3 state output Active "H"	16 bit address bus. Outputs address of memory or I/O device No. When memory is refreshed, refreshed address is output to seven bits at lower places.
D0 ~ D7 (Data Bus)	3 state Input/output Active "H"	8-bit data bus. Used to transfer data between memory or I/O device and CPU.
M1 (Machine Cycle one)	Output Active "L"	Signal which indicates started machine cycle is OP code fetch cycle.
MREQ (Memory Request)	3 state output Active "L"	Signal which indicates address information necessary for reading and writing memory is output to address bus.
IORQ (Input/Output Request)	3 state output Active "L"	During M1 cycle This signal requests outside devices to add interrupt on response vector to data bus when maskable interruption is acknowledged. Out of M1 cycle This signal indicates I/O device No. necessary for reading and writing I/O is output to the address bus.
RD (Read)	3 state output Active "L"	Signal which indicates data is being input in data bus. Memory or I/O device sends data to the data bus, synchronizing with this signal.
WR (Write)	3 state output Active "L"	Signal which indicates data is being output by data bus. Data to be sent to memory or I/O device is supplied to data bus, synchronizing with this signal.
RFSH (Refresh)	Output Active "L"	Signal which indicates refreshed address for dynamic RAM is output to seven bits at lower places of address during M1 cycle. Dynamic RAM reads refreshed address by using MREQ signal output at the same time as RFSH signal.
HALT (Halt State)	Output Active "L"	Signal which indicates HALT command is executed and CPU is set under HALT condition. When returning from HALT condition, any one of INT, NMI or RESET signals is necessary. CPU continues to refresh memory executing NOP command during HALT.
WAIT (Wait)	Input Active "L"	While this signal is active, CPU continues to wait. If this signal is used, low speed memory or I/O device can be directly connected to CPU. While CPU is waiting, memory is not refreshed.
INT (Interrupt Request)	Input Active "L"	Input terminal for interruption request signal. If this signal becomes active while interruption is permitted, CPU starts interruption program after finishing command being executed.
NMI (Non Maskable Interrupt)	Input Negative edge trigger	Input terminal for nonmaskable interruption request signal. If this signal becomes active, CPU jumps to address 0066 (16) after finishing command being executed, regardless of permission of interruption. Priority higher than INT signal is given to NMI signal.
RESET (Reset)	Input Active "L"	If this signal becomes active, CPU is reset.
BUSRQ (Bus Request)	Input Active "L"	If this signal becomes active, CPU heightens impedance of address bus (A0 ~ A15), data bus (D0 ~ D7) and 3-state system control terminals (MREQ, IORQ, RD, and WR). Thus, other devices can use above external buses. Priority higher than NMI signal is given to BUSRQ signal.
BUSAK (Bus Acknowledge)	Output Active "L"	Signal which indicates CPU has received BUSRQ signal and heightened impedance of address bus, data bus and 3-state system control terminal.
phi (Clock)	Input	+5V single-phase clock input terminal.

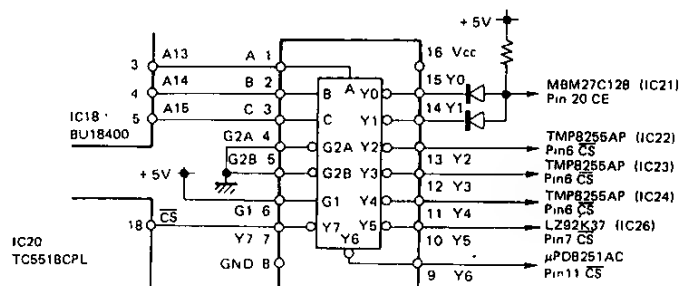
SEMICONDUCTOR DATA

SN74LS138N : Address decoder (Control unit IC19)

• Logic circuit



• Block diagram



• Truth table

INPUT					OUTPUT							
Enable		Select										
G1	G2	C	B	A	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7
X	H	X	X	X	H	H	H	H	H	H	H	H
L	X	X	X	X	H	H	H	H	H	H	H	H
H	L	L	L	L	L	H	H	H	H	H	H	H
H	L	L	L	H	H	L	H	H	H	H	H	H
H	L	L	H	L	H	H	L	H	H	H	H	H
H	L	L	H	H	H	H	H	L	H	H	H	H
H	L	H	L	L	H	H	H	H	L	H	H	H
H	L	H	L	H	H	H	H	H	H	L	H	H
H	L	H	H	L	H	H	H	H	H	H	L	H
H	L	H	H	H	H	H	H	H	H	H	H	L

Note 1 : G2 = G2A + G2B

Note 2 : H : High level

L : Low level

X : Either "H" or "L"

MAURITRON TECHNICAL SERVICES

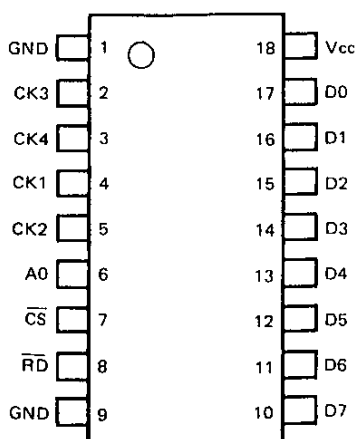
www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

LZ92K37 : Counter (Control unit IC26)

• Terminal connection diagram



• Terminal function

Pin No.	I/O	Signal name	Pin No.	I/O	Signal name
1	—	GND	10	TO	D7
2	Icu	CK3	11	TO	D6
3	Icu	CK4	12	TO	D5
4	Icu	CK1	13	TO	D4
5	Icu	CK2	14	TO	D3
6	Ic	A0	15	TO	D2
7	Ic	CS	16	TO	D1
8	Ic	RD	17	TO	D0
9	—	GND	18	—	Vcc

Ic : C MOS level input buffer

Icu : Input buffer with C-MOS level pull-up resistance

TO : Tristate output buffer

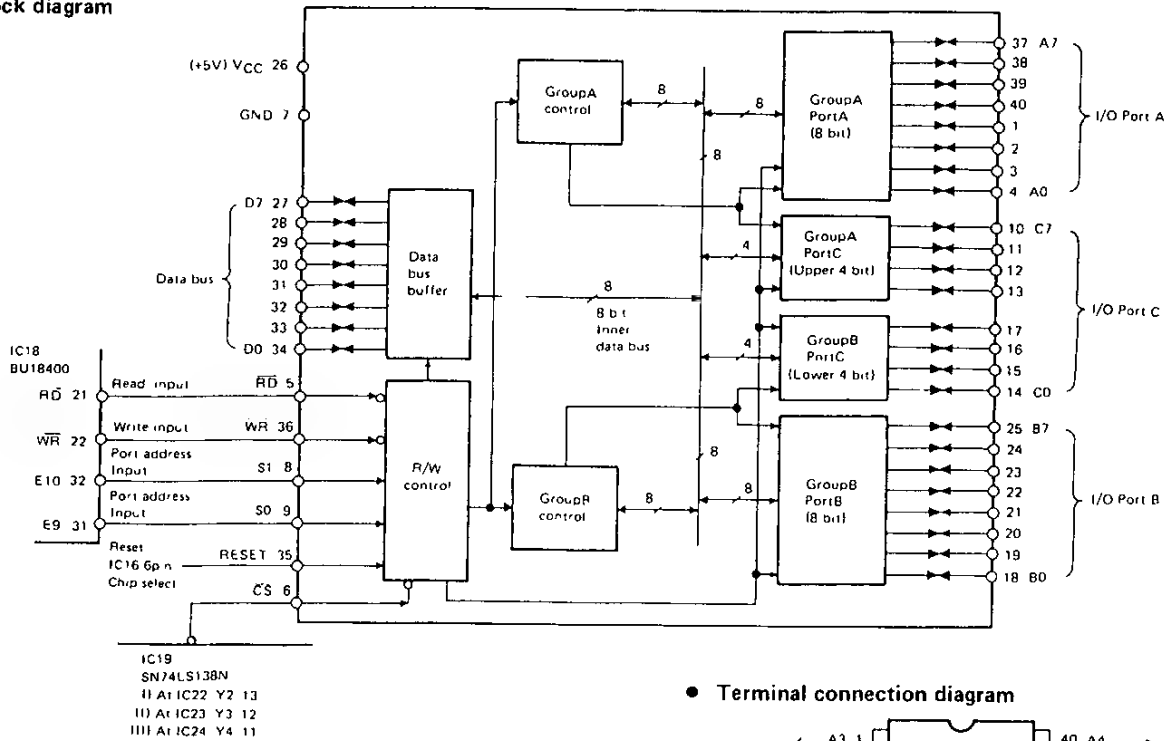
• Terminal function

Terminal name	Terminal function
CK1, 2	Rotary encoder pulse input
CK3, 4	Rotary encoder pulse input
A0	Output data selection input, 0 = CK1, 2 1 = CK3, 4
CS	Chip select input
RD	Read enable input
D0 ~ D7	Data bus output

SEMICONDUCTOR DATA

TMP8255AP-5 : I/O Port (Control unit IC22~24)

• Block diagram

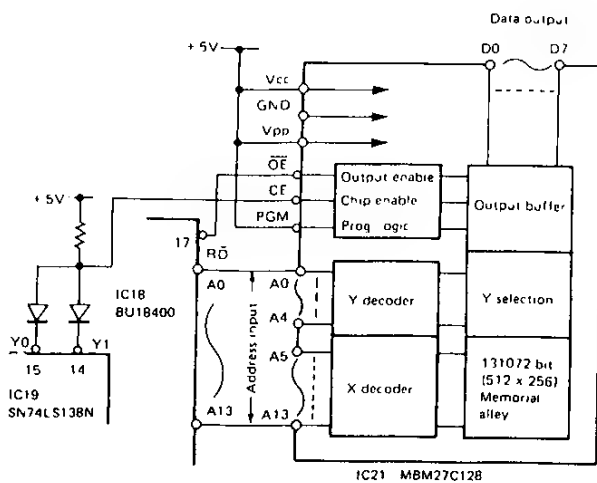


• Basic function

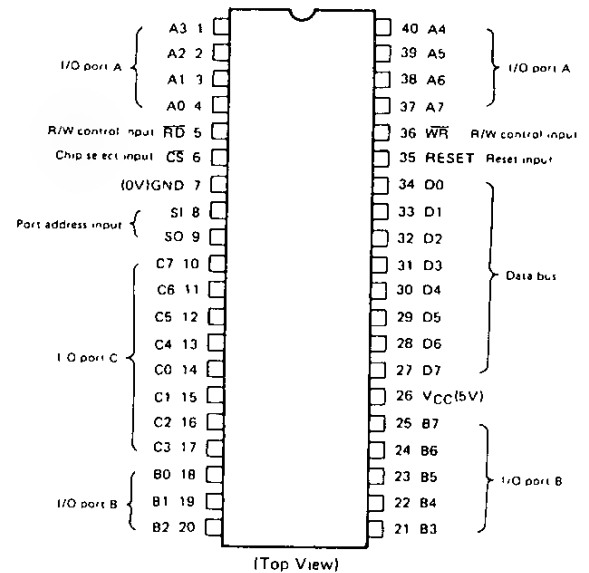
SI	SO	CS	RD	WR	Function
L	L	L	L	H	Data bus ← Port A
L	H	L	L	H	Data bus ← Port B
L	L	L	L	H	Data bus ← Port C
L	L	L	H	L	Port A ← Data bus
L	H	L	H	L	Port B ← Data bus
L	L	L	H	L	Port C ← Data bus
H	H	L	H	L	Control register ← Data bus
H	H	H	H	L	Data bus is in the high-impedance state
H	H	L	L	H	Prohibit assortment

MBM27C128-25JA2 : ROM (Control unit IC21)

• Block diagram



• Terminal connection diagram



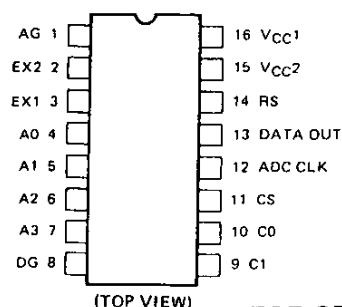
• Terminal function

Terminal name	Function
A0~A13	Address input
D0~D7	Data output
CE	Chip enable input
OE	Output enable input
PGM	Program input
Vcc	Power supply
Vpp	Program power supply
GND	Ground

SEMICONDUCTOR DATA

MB4052 : A/D Converter (Control unit IC27)

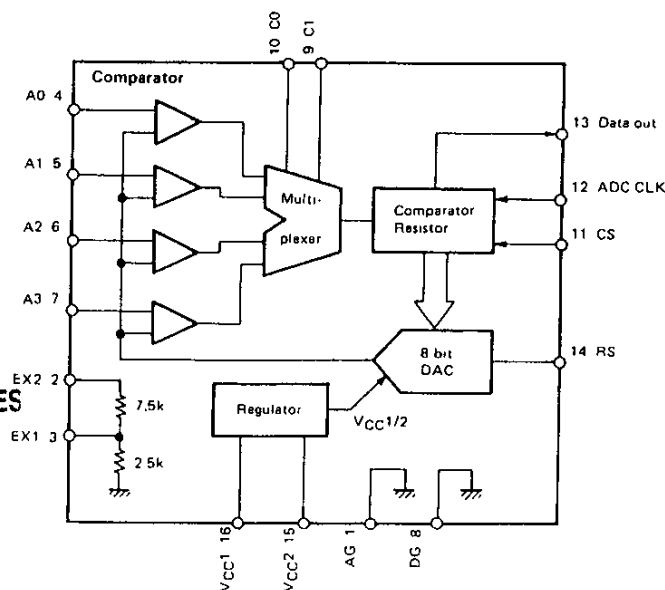
• Terminal connection diagram



FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

• Block diagram



• I/O signal pin function

Pin No.	Pin name	Symbol	Function
1	Analog ground	AG	Ground terminal
2	Range expander input	EX2	Analog input pin for expanding the range
3	Range expander output	EX1	Analog output pin for expanding the range. Connect to any pin from A0 to A3. By using EX1, EX2, the range is expanded to the X 4 range.
4~7	Analog entrance	A0~A3	4-ch analog input pin. Channel 1 is selected by channel select input C0 to C1.
8	Digital ground	DG	Ground terminal
9	Channel select input	C0	The input pin to designate the analog input channel for A/D converter. This signal is latched at the trailing edge of CS.
10		C1	
11	Chip select input	CS	This is the chip select input pin. When CS is inverted from "1" to "0", A/D converting starts and data output is enabled. After A/D converting is over or when an interrupt is required, set the CS back to "1".
12	A/D conversion clock	ADC CLK	This is the clock input pin for A/D conversion input to the comparator register sequentially. Conversion speed is determined by the clock speed. In the case of 8 bit, approx. 10 clocks will be needed. However, it is not necessary that the clock period be fixed.
13	Data output	DATA OUT	This is the open collector to output the result of A/D conversion. The data is output in the order of the start bit, most significant bit, 2nd significant bit, . . . , least significant bit, and the stop bit, synchronized with ADCCLK.
14	Range select input	RS	This is the input pin for selecting the voltage range of analog input. The VFS = VCC1/8 range is selected at "0", and the range of FVS = VCC1/2 is selected at "1". During conversion, hold this pin to "0" or "1".
15	Power supply pin 2	VCC2	When driving with 3.5V to 6.0V of power, connect VCC1 and VCC2 to each other, and apply the power voltage to them. When driving 8 to 18V of power, apply the power voltage to VCC2. At this time, the 5V stabilized voltage is output to VCC1, and approx. 10mA current can be supplied externally to the IC. When either 3.5~6.0V or 8~18V power is used, VCC1 is the reference voltage for A/D conversion.
16	Power supply pin 1	VCC1	

• Channel select

C1	C0	Selected Ch
0	0	A0
0	1	A1
1	0	A2
1	1	A3

• Range select

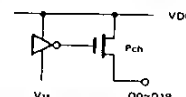
RS	Conversion voltage range
0	$0 \sim \frac{V_{CC1}}{8}$
1	$0 \sim \frac{V_{CC1}}{2}$

SEMICONDUCTOR DATA

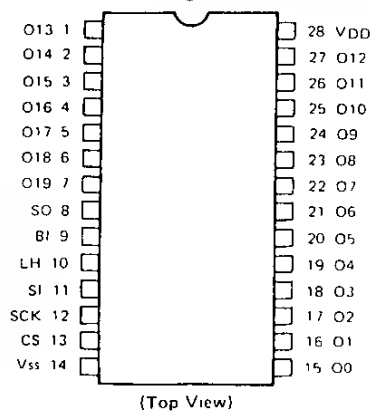
μPD6300C : Fluorescent display tube driver (Display unit IC1)

• Terminal function

Terminal No.	Symbol	Terminal name	I/O	Function
1~7	O13~O19	FIP segment driver	O	High dielectric strength (40V) output in the Pch open Corresponds to the output of O13~O19
8	SO	Serial data output pin	O	Output serial data the trailing edge of SCK, when the n-number of μPD6300Cs are connected in series, this can be connected to the SI of the following stage
9	BI	Blanking pin	I	This input can turn off all indicator or displays, and can dim them by applying a random duty pulse from outside Active low
10	LH	Latch pin	I	Transmits the connects of the serial shift register to the buffer register at low level, to latch the connects at the rising time Active rising (leading) edge
11	SI	Serial data input pin	I	This is the data input pin Inputs data to the shift register at the rising edge of SCK
12	SCK	Serial clock input pin	I	Reads out the SI data to the shift register at the rising edge of SCK. Outputs data from SO at the trailing edge of SCK
13	CS	Chip select pin	I	When CS is high, this inhibits SCK and LH, and when CS is low, activates SCK and LH
14	Vss	GND	-	Connect to the GND terminal of the system
15~27	O0~O12	FIP segment driver	O	Pch open-drain system, high dielectric-strength output Corresponds to the output of O0~O12
28	VDD	Power supply pin	-	5V ± 10%

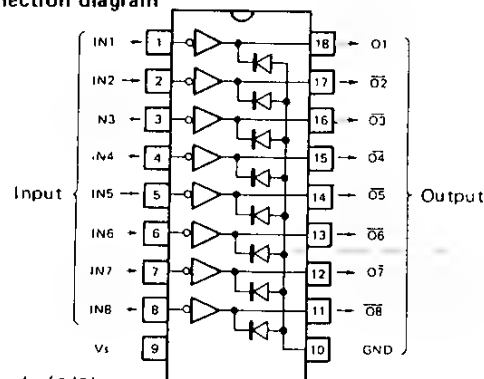


• Terminal connection diagram

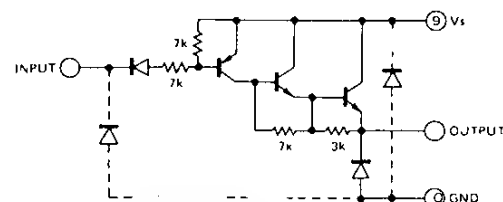


M54581P : Band data driver (Signal unit IC1)

• Terminal connection diagram

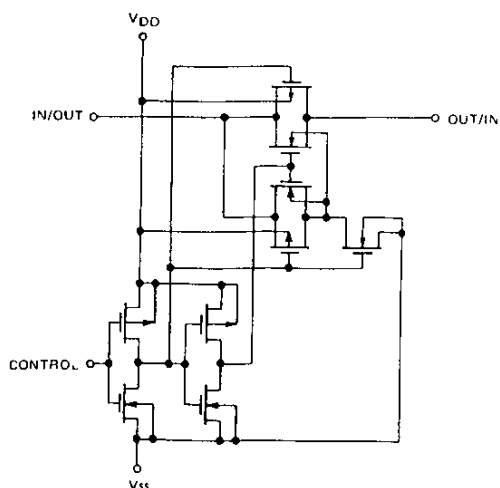


• Equivalent circuit (1/8)

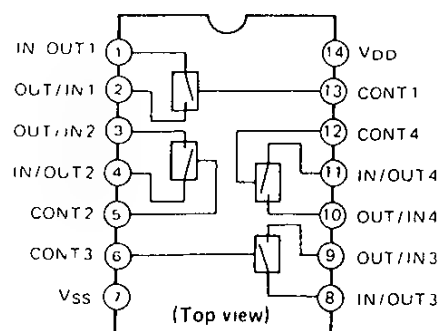


TC4066BP : Switch (Signal unit IC7~10)

• Equivalent circuit (1/4)



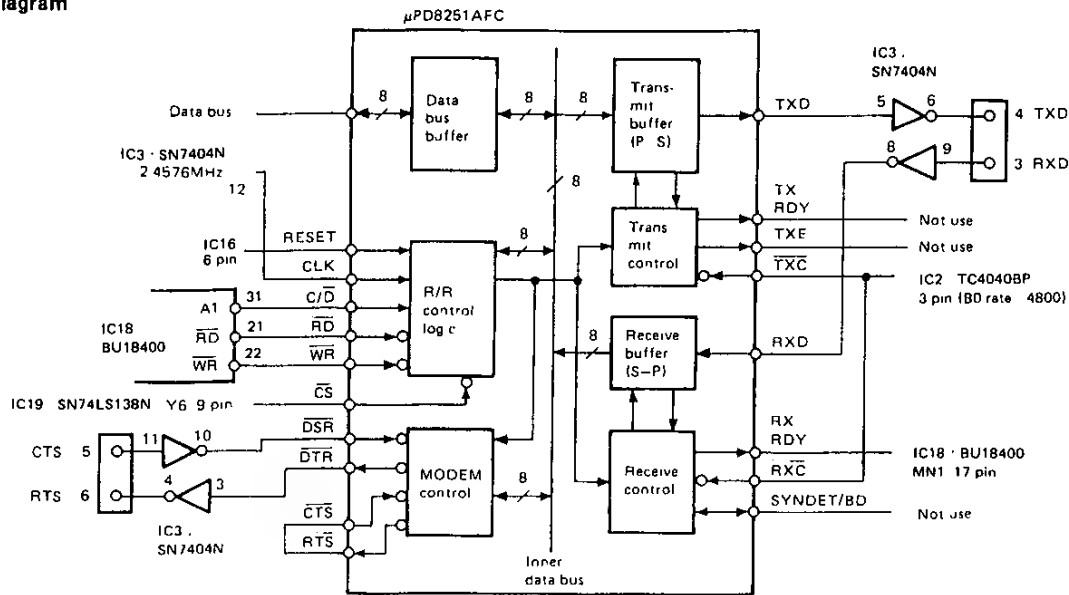
• Terminal connection diagram



SEMICONDUCTOR DATA

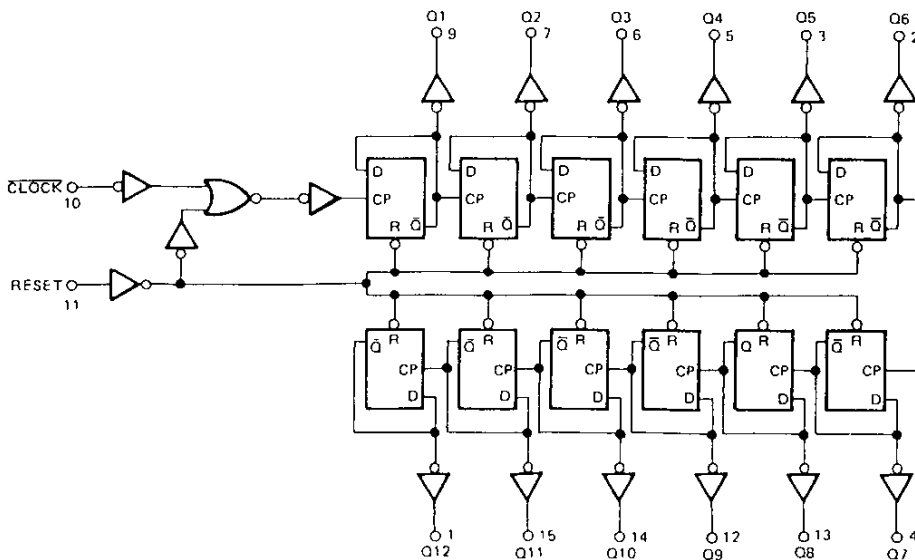
μPD8251AFC (Option IF-10C IC1)

• Block diagram



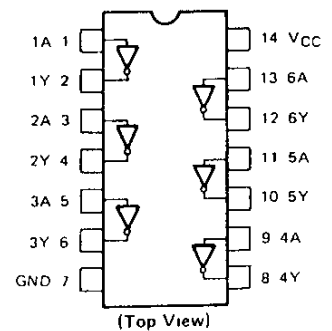
TC4040BP (Option IF-10C IC2)

• Block diagram



HD7404P (Option IF-10C IC3)

• Block diagram



FOR SERVICE MANUALS
CONTACT:

MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

DESCRIPTION OF COMPONENTS

SWITCH UNIT (X41-3030-XX)

Component	Use/Function	Operation/Condition/Compatibility
IC1	Microphone amplifier	Processing of audio signals, speech processor
Q1	Switching transistor	Q1 is ON when PRS is "H"
Q2~4	Switching transistor	Q2~4 are ON when PKS is "L"
Q5	Amplification of control signal	
Q6	Amplifier	For VOX TS-140S only
D1	Detection of control signal	
D2,3	Switching diode	D2 is ON when RXB is "H". D3 is ON when PKS is "L"

100W FINAL UNIT (X45-3100-XX)

Component	Use/Function	Operation/Condition/Compatibility
Q1	Pre drive amplifier	Wide band amplification of HF band
Q2,3	Drive amplifier	Push-pull wide-band amplification of HF band.
Q4,5	Final amplifier	Push-pull wide-band amplification of HF band
Q6	Supply of bias for drive	Temperature compensation of drive
Q7	Supply of bias for final	Temperature compensation of final
Q8	Constant-voltage power supply	5V for digital system
Q9	Constant-voltage power supply	5V for PLL system
D1	Temperature compensation	Temperature sensing of pre drive
D2	Temperature compensation	Temperature sensing of drive
D3	Temperature compensation	Temperature sensing of final
D4	Absorption of surge voltage	Relay for changing over HF and VHF of drive TS-680S only
D5	Absorption of surge voltage	For fan motor
D6	Protection of inverse connection	For power supply terminal
D7	Constant voltage power supply	Power supply of 8.2V for temperature sensor module

FILTER UNIT (X51-3040-XX)

Component	Use/Function	Operation/Condition/Compatibility
Q1	Drive amplifier of 50MHz band	TS-680S only
Q2	Final amplifier of 50MHz band	TS-680S only
Q3	Switching of RAT	Grounds receiving antenna terminal when transmitting
D1	Absorption of surge voltage of relay	For relay of 500kHz~2.5MHz LPF
D2	Absorption of surge voltage of relay	For relay of 2.5MHz~4.0MHz LPF
D3	Absorption of surge voltage of relay	For relay of 4.0MHz~7.5MHz LPF
D4	Absorption of surge voltage of relay	For relay of 7.5MHz~14.5MHz LPF
D5	Absorption of surge voltage of relay	For relay of 14.5MHz~21.5MHz LPF
D6	Absorption of surge voltage of relay	For relay of 21.5MHz~30MHz LPF
D7	Absorption of surge voltage of relay	For relay of 50MHz~54MHz LPF TS-680S only
D8	Absorption of surge voltage of relay	For changeover of TX and RX
D9	Rectification of traveling wave	High-frequency rectification
D10	Rectification of reflected wave	High-frequency rectification
D11	Protection from lightning surge	Surge absorber of receiving antenna terminal

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

DESCRIPTION OF COMPONENTS

CONTROL UNIT (X53-3100-XX)

VCO1-D mode is TS-680S only

Component	Use/Function	Operation/Condition/Compatibility
IC1	PLL3 (BFO PLL)	1,2,7: Frequency division ratio setting input. 3: 91MHz input (VCO3) in AM mode 10: VCO lock voltage output. 11: UL line. "L" in UL mode. 15: 4.5MHz input (1/8 fSTD)
IC2	Frequency divider (1/20)	4: 91MHz input. 8: 4.55MHz output.
IC3	Frequency divider (1/10)	1: 4.55MHz input. 2: SFT line. Output is OFF when "H" is input 12: 455kHz output.
IC4	PLL2 (VFO 10Hz step for covering 50kHz)	1,2,7: Frequency division ratio setting input. 3: 55~60MHz input (VCO2). 10: VCO lock voltage output 11: UL line "L" in UL mode 15: 4.5MHz input (1/8 fSTD)
IC5	Frequency divider (1/10)	4: 55~60MHz input. 8: 5.5~6.0MHz output
IC6	Mixer (MIX5)	1: 10.05~10.55MHz output. 2: 5.5~6.0MHz input 5: 4.55MHz input.
IC7	Frequency divider (1/10)	1: 10.05~10.55MHz input 12: 1.005~1.055MHz output
IC8	Frequency divider (1/8)	8: 4.5MHz output (1/8 fSTD) 14: Input of reference frequency of 36MHz (fSTD)
IC9	Mixer (MIX4)	1: 5.505~5.555MHz output. 2: 1.005~1.055MHz input. 5: 4.5MHz output
IC10	Mixer (MIX3)	1: 41.505~41.555MHz output 2: 5.505~5.555MHz input 5: 36MHz input
IC11	Mixer (MIX2)	1: Output of 37.005~37.055MHz (in VCO1-A mode) or 77.505~77.555MHz (in VCO1-C,D mode). 2: 41.505~41.555MHz input 5: Input of 4.5MHz (in VCO1-A mode) or 36MHz (in VCO1-C,D mode).
IC12	Mixer (MIX1)	3: Output of 3.55~13.5MHz (in VCO1-A mode) or 9.05~20.0MHz (in VCO1-B mode) or 15.95~7.5MHz (in VCO1-C mode) or 12.55~16.5MHz (in VCO1-D mode) 5: Input of 40.555~50.555MHz (in VCO1-A mode) or 50.555~61.555MHz (in VCO1-B mode) or 61.555~70.055MHz (in VCO1-C mode) or 90.055~94.055MHz (in VCO1-D mode) 11: Input of 37.005~37.055MHz (in VCO1-A mode) or 41.505~41.555MHz (in VCO1-B mode) or 77.505~77.555MHz (in VCO1-C mode).
IC13	PLL1 (VFO 50kHz step, last VCO)	1: 4.5MHz input (1/8 fSTD) 5: VCO lock voltage output 7: UL line "L" in UL mode. 8: Input of 3.55~13.5MHz (in VCO1-A mode) or 9.05~20.0MHz (in VCO1-B mode) or 15.95~7.5MHz (in VCO1-C mode) or 12.55~16.5MHz (in VCO1-D mode) 9,10,11: Frequency division ratio setting input. 13: Signal for 50kHz output marker

FOR SERVICE MANUALS
CONTACT:

MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

DESCRIPTION OF COMPONENTS

Component	Use/Function	Operation/Condition/Compatibility
IC14	PLL4 (HET PLL)	1,2,7. Frequency division ratio setting input 3 39.6MHz input (VCO4). 10 VCO lock voltage output 11 UL line "L" in UL mode. 15: 4.5MHz input (1/8 fSTD)
IC15	System reset	Generates reset signal when source voltage rises or lowers to make timing of operation and backing up of microprocessor
IC16	Inverter	1/6, 2/6 Beep tone oscillator 3/6, 4/6. Shaping of system reset signal wave form 5/6, 6/6: System clock oscillator (2.45MHz)
IC17	System clock oscillator	Generates interrupt signal for dynamic lighting of indicator lamp
IC18	CPU	8-bit microprocessor, Z80 (See CIRCUIT DESCRIPTION)
IC19	Address decoder	Divides address signal of CPU and converts chip select signal of each IC and divides memory area of 64kbytes into 8kbytes x 8blocks
IC20	Static RAM	Makes data such as VFO, memory, etc. for microprocessor Area capacity: 2kbytes x 8bits Backed up by system reset signal
IC21	ROM	Control program (including program for outside control) is built in Area capacity 16kbytes x 8bits
IC22,23	I/O port	Bus interface I/O port All are set by output ports (See I/O PORT FUNCTIONS)
IC24	I/O port	Bus interface I/O port All are set by input ports (See I/O PORT FUNCTIONS)
IC25	Inverter	Absorbs chattering of encoder
IC26	Counter	Counts pulses of encoder Two system of quadruplication (CK1,2) and duplication (CK3,4)
IC27	A/D converter	Converts analog voltage input to digital data and output it 4 RIT 5 IF shift 6 Carrier point (LSB) compensation 7 Carrier point (USB) compensation
Q1	VCO3 (PLL3)	90.7~91.3MHz
Q2	VCO3 buffer	
Q3,4	BFO buffer	453.5~456.5kHz
Q5	VCO2 (PLL2)	55.0~60.0MHz
Q6	VCO2 buffer	
Q7	MIX5 output amplifier	10.05~10.55MHz
Q8	TTL input buffer	
Q9	Reference crystal oscillation (OSC)	36MHz (fSTD)
Q10	OSC buffer	
Q11	TTL input buffer	
Q12	MIX3 input buffer	36MHz
Q13	MIX1 input buffer	37.005~37.055MHz (VCO1-A model) or 41.505~41.555MHz (VCO1-B model) or 77.505~77.555MHz (VCO1-C,D model)
Q14	VCO1 buffer	40.555~70.055MHz or 90.055~94.055MHz
Q15	PLL IF signal amplification	2.5~22.5MHz
Q16~18	PLL1 low-pass filter	Active (Reference frequency, 50kHz)
Q19~21	PLL4 low-pass filter	Active (Reference frequency, 5kHz or 25kHz)
Q22	VCO4 (PLL4)	39.6MHz
Q23	VCO4 buffer	
Q24	HET buffer	
Q25,26	Shaping of UL signal wave form	Output is "L" in UL mode

FOR SERVICE MANUALS

CONTACT:

MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

DESCRIPTION OF COMPONENTS

Component	Use/Function	Operation/Condition/Compatibility
Q27	BPF (PLL) buffer	MIX1 input of 37.005~37.055MHz in VCO1-A mode.
Q28	BPF (PLL) buffer	MIX1 input of 41.505~41.555MHz in VCO1-B mode.
Q29	BPF (PLL) buffer	MIX1 input of 77.505~77.555MHz in VCO1-C,D mode.
Q30	Outside interrupt control	Transfers to program for outside control of personal computer.
Q31	RAM backup control	Transfers to backup mode of RAM when power is OFF
Q32	BPF (PLL) buffer	Active is "H" in VCO1-C,D mode.
Q33	BPF (PLL) buffer and VCO1-B buffer	Active is "H" in VCO1-B mode
Q34	BPF (PLL) buffer and VCO1-A buffer	Active is "H" in VCO1-A mode.
Q35	TONE UNIT signal buffer	Active is "H" in FM transmission mode of split memory CH.
Q36	SSB mode signal buffer	Active is "H" in SSB mode.
Q37	CW mode signal buffer	Active is "H" in CW mode (including CWN mode).
Q38	AM mode signal buffer	Active is "H" in AM mode.
Q39	FM mode signal buffer	Active is "H" in FM mode.
Q40	CWN mode signal buffer	Active is "H" in CWN mode.
Q41	MSCR LED driver	Drives LED when memory is scrolling
Q42	F.LOCK LED driver	Drives LED in F.LOCK mode
Q43	1MHz LED driver	Drives LED in 1MHz mode
D1	VCO3 varicap	Frequency variable.
D2,3	VCO2 varicap	Frequency variable
D4,5	BPF changeover switch	ON in VCO1-B mode
D6	BPF changeover switch	ON in VCO1-A,C,D mode
D7,8	Wired OR	"H" in VCO1-A,C,D mode.
D9,10	LPF changeover switch	ON in VCO1-C,D mode.
D11	LPF changeover switch	ON in VCO1-A mode
D12,13	BPF changeover switch	ON in VCO1-C,D mode
D14,15	BPF changeover switch	On in VCO1-A mode
D16	Wired OR	Composition of PLL1, UL signal
D17	VCO4 varicap	Frequency variable
D18	Beep switch	Beep oscillator is turned ON/OFF by beep pulse Active is "H".
D19,20	Composition of ROM chip select	Makes 2 blocks of select signal of 8kbytes and use them as ROM select signal of 16kbytes
D21,23,24	Power supply changeover switch	Changes power supply in RAM backup mode.
D22	Stabilization of voltage	For Lithium battery
D25~27	Prevention of reverse current	
D29,31	Extended function switch	

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

DESCRIPTION OF COMPONENTS

DISPLAY UNIT (X54-3050-XX)

Component	Use/Function	Operation/Condition/Compatibility
IC1	Serial input-type high-voltage fluorescent indicator lamp	Converts serial indication data from CONTROL UNIT in parallel and turns on fluorescent indicator lamp.
Q1	Fluorescent indicator lamp driver	
D1	Switching	F.LOCK
D2	Switching	M ► V
D3	Switching	M IN
D4	Switching	DOWN
D5	Switching	VFO/M
D6	Switching	SCAN
D7	Switching	CLEAR
D8	Switching	UP
D9	Switching	USB/LSB
D10	Switching	CW (N/W)
D11	Switching	FM/AM
D12	Switching	1 MHz
D13	Switching	A/B
D14	Switching	SPLIT
D15	Switching	A-B
D16	Switching	RIT
D17	Generation of filament bias voltage	Generates bias for filament of fluorescent indicator lamp
D18	Indication	Turns on red lamp in transmission mode
D19	Indication	Turns on yellow lamp when M SCR is ON
D20	Indication	Turns on green lamp when F LOCK is ON
D21	Indication	Turns on green lamp when 1 MHz is ON

SIGNAL UNIT (X57-3190-00: TS-680S) (X57-3200-XX: TS-140S)

Component	Use/Function	Operation/Condition/Compatibility
IC1	Band data driver	13.8V output
IC2	Decoding of band data	Open collector Active is "L"
IC3	RX Product detection, TX BM	455kHz ↔ AF
IC4	Audio power amplifier	
IC5	TX 1st mixer	455kHz +40.055MHz
IC6	FM IF amplifier, detection, squelch	
IC7 (1/4)	DC switch	Turned ON in TX mode
IC7 (2/4)	AF signal switch	Turned ON in SSB and CW mode
IC7 (3/4)	AF signal switch	Turned ON in FM mode
IC7 (4/4)	AF signal switch	Turned ON in AM mode
IC8 (1/4)	AGC time constant switch	Turned ON in AM mode
IC8 (2/4)	AGC time constant switch	Turned ON in AGC and SLOW mode
IC8 (3/4)	Changeover switch of meter	Turned ON in TX/ALC mode
IC8 (4/4)	Changeover switch of meter	Turned ON in TX/PWR mode
IC9 (1/4)	S-meter sensitivity switch	Turned ON in 50MHz band mode
IC9 (2/4)	S-meter sensitivity switch	Turned ON in HF mode
IC9 (3/4)	Changeover switch of meter	Turned ON in RX mode
IC9 (4/4)	S-meter sensitivity switch	Turned ON in FM mode
IC10 (1/4)	ALC level switch	Turned ON in AM and CW mode
IC10 (2/4)	ALC level switch	Turned ON in SSB mode
IC10 (3/4)	ALC level switch	Turned ON in power-down mode
IC10 (4/4)	ALC level switch	Turned ON in mode other than power-down mode
IC11 (1/4)	ALC amplifier	
IC11 (2/4)	Reflected wave voltage amplifier	
IC11 (3/4)	Detected output amplifier	Amplifies voltage of traveling wave and reflected wave.
IC11 (4/4)	Power meter amplifier	
IC12	8V AVR	

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

DESCRIPTION OF COMPONENTS

Component	Use/Function	Operation/Condition/Compatibility
Q1	13.8V line switching	Turned ON in 2MHz band mode
Q2	13.8V line switching	Turned ON in 50MHz band mode. TS-680S only
Q3,4	Switching	Turned "L" in 50MHz band mode TS-680S only
Q5	8V line switching	Turned ON in 50~54MHz mode. TS-680S only
Q6	8V line switching	Turned ON in 21.5~30.0MHz mode.
Q7	8V line switching	Turned ON in 10.5~21.5MHz mode.
Q8	8V line switching	Turned ON in 0.5~10.5MHz mode.
Q9~11	VCO	Q9: 0.5~10.5MHz Q10: 10.5~21.5MHz Q11: 21.5~30.0MHz
Q12	VCO	50.0~54.0MHz. TS-680S only
Q13,14	VCO output buffer	
Q15	VCO output amplifier	
Q16,17	Switching	Reduces noise when RF AMP and ATT are turned ON/OFF.
Q18,19	RX 1st mixer	Receiving frequency→40.055MHz.
20	13.8V line switching	Turned ON in RX mode.
Q21	Post amplifier	40.055MHz
Q22,23	RX 2nd mixer	40.055MHz →455kHz
Q27	IF amplifier	455kHz.
Q28,29	Switching	Shunt IF circuit when NB pulse is generated
Q30,31	IF amplifier	455kHz
Q32,34	8V line switching	Turned ON in CW mode (excluding CWN)
Q35~39	8V line switching	Q35: SSB Q36: AM Q37: FM Q38: CW Q39: CWN
Q40,41	Switching	Shunt of TX circuit in RX mode
Q42	Switching	Shunt of RX circuit in TX mode
Q43	8V line switching	Generates RB.
Q44	8V line switching	Generates AMT and SST.
Q45~47	NB amplifier	455kHz
Q48	NB buffer	
Q49	NB AGC amplifier	
Q50	Switching	Set to "L" when NB pulse is generated in NB2.
Q51	Switching	Set to "L" when NB pulse is generated in NB1.
Q52	Switching	Set to "L" when SKB pulse is generated.
Q53	IF buffer	AGC, AM.
Q54	AF buffer	AM
Q55	Switching	Set to "L" in TX mode
Q56	AF amplifier	
Q57	Switching	Set to "L" in MUT and TX mode
Q58	AF amplifier	FM
Q59	AGC amplifier	
Q60	Generation of S-meter voltage.	
Q61	S-meter amplifier	
Q62	Switching	Prevents S meter from over-reading when power is turned ON.
Q63	Switching	Generates HF voltage. TS-680S only
Q64	Switching	Generates 50MHz band voltage. TS-680S only
Q65,66	Switching	Sets AGC time constant in mode other than FM mode.
Q67	Switching	Invalidates changeover of FAST/SLOW of AGC in FM mode.
Q68	Generation of ALC meter voltage	
Q69	ALC meter amplifier	
Q70	RF amplifier	28MHz band. TS-680S only
Q71	Buffer	28MHz band TS-680S only
Q72	RF amplifier	50MHz band. TS-680S only
Q73	Buffer	50MHz band TS-680S only

DESCRIPTION OF COMPONENTS

Component	Use/Function	Operation/Condition/Compatibility
Q74	TX AF amplifier	
Q75	Switching	Shunt of FMM in RX mode
Q76	8V line switching	Turned ON in TOC (Tone transmission) mode.
Q77	Switching	Generates RXB. Set to "L" in TX mode
Q78	HET amplifier	39.6MHz.
Q79,80	TX 2nd mixer	40 055MHz (39.6MHz in FM mode)→Transmission frequency
Q81	RF amplifier	
Q82	8V line switching	Turned ON in FM/TX mode.
Q83,85	13 8V line sw. tching	Turned ON in 50MHz band TS-680S only
Q84	Switching	Connects KEY line in CW mode
Q86	TX IF amplifier	455kHz
Q87	8V line switching	Turned ON in TX mode. Generates KEYING timing
Q88	8V line switching	Turned ON in FM, CW and TX mode
Q89	AF amplifier	Output to RX packet terminal
Q90,91	Switching	Generates SS and CSS
Q92	Switching	Set to "L" in power-down mode
Q93	Switching	Set to "L" in mode other than power down mode
Q94	Switching	Set to "L" in HF mode. TS-680S only
Q95	Switching	Set to "L" in 50MHz mode TS-680S only
Q96	Switching	Set to "L" in SSB and FM mode
Q97	Sw tching	Generates squelch signal for packet
Q98	Switching	Generates N.F.T.
Q99	Switching	Connects SEM line in CW mode
D1~3	Switching	Changeover of BPF
D5,6,9,10	Protection from lightning surge	
D7,8,11~20	Switching	Changeover of BPF.
D21,22	Sw tching	Changeover of BPF TS-680S only
D23	Absorption of surge voltage of relay	For attenuator relay
D24	Prevent on of reverse current	Information on 28F 28MHz band and 50F 50MHz band TS-680S only
D25	Absorption of surge voltage of relay	For RF AMP changeover relay TS-680S only
D26~29	Prevention of reverse current	Decodes band information
D30	Voltage shift	
D31	Prevention of reverse current	Decodes band information TS-680S only
D33	Prevention of reverse current	
D34,35	Change of VCO frequency	0.5~10.5MHz
D36,37	Change of VCO frequency	10.5~21.5MHz
D38	VCO switching	For 10.5~21.5MHz
D39,40	Change of VCO frequency	21.5~30.0MHz
D41	VCO switching	For 21.5~30.0MHz
D42,43	Change of VCO frequency	50.0~54.0MHz TS-680S only
D44	VCO switching	For 50.0~54.0MHz TS-680S only
D45	Switching	For TX mixer of VCO output
D46	Switching	For RX mixer of VCO output
D47	Attenuator	For CAR level
D48	Prevent on of reverse current	RXB+SSB.
D49	Prevention of reverse current	
D50,53	Switching	Receiving 1st IF MCF circuit
D51,52	Switching	Transmission 2nd IF MCF circuit
D54	Switching	Receiving 2nd IF circuit
D55	Switching	Transmission 1st IF circuit
D56,57,60~63	Switching	Selects 455kHz filter
D58,59	Prevention of reverse current	SSB+CW wide
D64	Switching	Transmission 1st IF circuit

FOR SERVICE MANUALS
CONTACT:

MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

DESCRIPTION OF COMPONENTS

Component	Use/Function	Operation/Condition/Compatibility
D65	Switching	Receiving 2nd IF circuit.
D66	Switching	RB line.
D67	Switching	SS line.
D68	Prevention of reverse current	SSB+AMB.
D69	Prevention of reverse current	SSB+CWB.
D70	Prevention of reverse current	MUT+RB.
D71	Noise detection	FM squelch circuit.
D72	Switching	FM 2nd IF circuit.
D73,74	AGC detection	
D75	AM detection	
D76	Prevention of reverse current	TXB.
D77	Prevention of reverse current	FMB+CWB.
D78	Temperature compensation	S-meter circuit.
D79	Prevention of reverse current	50W+PPD.
D80	Prevention of reverse current	PD+FMB.
D81	Prevention of reverse current	AMB+CWB.
D82	Prevention of reverse current	VSF.
D83	Prevention of reverse current	ALC.
D85	Prevention of reverse current	Protection
D86	Noise detection	NB1.
D87	Noise detection	NB2.
D88	Voltage shift	SBK.
D89	Prevention of reverse current	CWB+FMB.
D90	Absorption of surge voltage of relay	For remote control relay.
D91,92	Voltage shift	Outside ALC.
D93	Voltage shift	For DELAY TIME module VCC
D95	Prevention of reverse current	
D96	Switching	HET amplifier input
D97,98	Prevention of reverse current	RXB+NFT+ALC.
D99	Switching	Receiving HET output
D100	Switching	Transmission HET output.
D101,102	Switching	FM transmission IF output
D103~106	Switching	Changeover of transmission BPF.
D107	Prevention of reverse current	RXB+NFT.
D108	Prevention of reverse current	CWB.
D109,110	Switching	CAR TIF input circuit.
D111	Temperature compensation	TIF amplifier.
D112	Prevention of reverse current	RB.
D113	Prevention of reverse current	Power supply circuit for keying
D114	Prevention of reverse current	KEY.
D115	Prevention of reverse current	PC1.
D116	Stabilization of voltage	For ALC amplifier.
D117	Prevention of reverse current	Unbalancing circuit of AM carrier.
D118	VCO switching	For 0.5~105MHz
D119	Prevention of reverse current	SSB+FMB.
D120	Prevention of reverse current	For IC8 VCC.
D122	Switching	CAR TIF input circuit.
D123	Prevention of reverse current	CWB.
D124	Switching	FM transmission IF output.
D125	Voltage shift	Protection circuit.
D126	Switching	Transmission output in mode other than FM mode
D501	Isolator	CWB
D502	Isolator	VOX line.
D503	Voltage shift	VOX line.

DESCRIPTION OF COMPONENTS

SIDE TONE UNIT (X59-1060-00)

Component	Use/Function	Operation/Condition/Compatibility
Q1	SIDE TONE oscillation	800Hz
D1	Switching	Turned ON when KEY DOWN
D2	Prevention of reverse current	
D3	Temperature compensation	

VOX UNIT (X59-1080-00)

Component	Use/Function	Operation/Condition/Compatibility
IC1 (1/2)	Comparison of VOX level	
IC1 (2/2)	Comparison of ANTI VOX level	
IC2	NOR circuit (RS flip-flop)	
Q1	Switching transistor	Q1 is ON when IC2/11pin is "H"
D1,2	Prevention of reverse current	

FM MIC AMP UNIT (X59-3000-02)

Component	Use/Function	Operation/Condition/Compatibility
IC1 (1/2)	Low-pass filter	1,2 Output
IC1 (2/2)	Limiting amplifier	6 Input 7 Output
Q1	SUB TONE	

TRX UNIT (X59-3340-00)

Component	Use/Function	Operation/Condition/Compatibility
Q1~5	Switching transistor	Q3,5 are ON in receiving mode, and Q1,2,4 are ON in transmission mode
D1,2	Switching	

NB2 UNIT (X59-3350-00)

Component	Use/Function	Operation/Condition/Compatibility
IC1	One-shot multi vibrator	Synchronized to pulse, with width of 1/4,4/4 5mS and 2/4,3/4 40mS
Q1	Switching transistor	Turned ON when pulse is 15mS
Q2	Switching transistor	Turned OFF when pulse is 40mS

DELAY TIME UNIT (X59-3360-00)

Component	Use/Function	Operation/Condition/Compatibility
IC1	One shot multi vibrator	
Q1,2,6	Switching transistor	Turned ON when CW KEY DOWN
Q3~5,7	Switching transistor	Turned OFF when CW KEY DOWN
D1	Prevention of reverse current	

FAN UNIT (X59-3370-00)

Component	Use/Function	Operation/Condition/Compatibility
IC1	Temperature detection	1/2 Power down 2/2 Fan motor operation
Q1	Switching transistor	

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

PARTS LIST

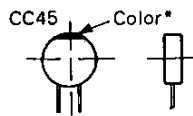
CAPACITORS

CC 45 TH 1H 220 J
1 2 3 4 5 6

- 1 = Type ceramic, electrolytic, etc.
2 = Shape round, square, etc.
3 = Temp. coefficient
4 = Voltage rating
5 = Value
6 = Tolerance

• Temperature Coefficient

1st Word	C	L	P	R	S	T	U
Color*	Black	Red	Orange	Yellow	Green	Blue	Violet
ppm/°C	0	-80	-150	-220	-330	-470	-750



• Capacitor value

- 0 1 0 = 1pF
1 0 0 = 10pF
1 0 1 = 100pF
1 0 2 = 1000pF = 0.001μF

1 0 3 = 0.01μF

2 2 0 = 22pF
1st number | Multiplier
2nd number

2nd Word	G	H	J	K	L
ppm/°C	± 30	± 60	± 120	± 250	± 500

Example CC45TH = -470±60 ppm/°C

• Tolerance

Code	C	D	G	J	K	M	X	Z	P	No code
(%)	± 0.25	± 0.5	± 2	± 5	± 10	± 20	+ 40 - 20	+ 80 - 20	+ 100 - 0	10μF~10~+50 4.7μF~10~+75

Less than 10 pF

• Rating voltage

2nd word	A	B	C	D	E	F	G	H	J	K	V
1st word											
0	1.0	1.25	1.6	2.0	2.5	3.15	4.0	5.0	6.3	8.0	—
1	10	12.5	16	20	25	31.5	40	50	63	80	35
2	100	125	160	200	250	315	400	500	630	800	—
3	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	—

• Chip capacitors

(EX) CC 73 F SL 1H 000 J
1 2 3 4 5 6 7
(Chip) (CH,RH,UJ,SL)
(EX) CK 73 F F 1H 000 J
1 2 3 4 5 6 7
(Chip) (B,F)

- 1 = Type ceramic, electrolytic, etc.
2 = Shape round, square, etc.
3 = Dimension
4 = Temp. coefficient
5 = Voltage rating
6 = Value
7 = Tolerance.

RESISTORS

• Chip resistor (Carbon)

(EX) RD 73 E B 28 000 J
1 2 3 4 5 6 7
(Chip) (B,F)

• Carbon resistor (Normal type)

RD 73 E B 28 000 J
1 2 3 4 5 6 7

Dimension

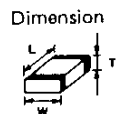
Dimension code	L	W	T
Empty	5.6 ± 0.5	5.0 ± 0.5	Less than 2.0
E	3.2 ± 0.2	1.6 ± 0.2	Less than 1.25
F	2.0 ± 0.3	1.25 ± 0.2	Less than 1.25

Dimension

Dimension code	L	W	T	Wattage
E	3.2 ± 0.2	1.6 ± 0.2	0.57	2B
F	2.0 ± 0.3	1.25 ± 0.2	0.45	2A

Rating wattage

Cord	Wattage	Cord	Wattage	Cord	Wattage
2A	1/10W	2E	1/4W	3A	1W
2B	1/8W	2H	1/2W	3D	2W
2C	1/6W				



PARTS LIST

※ New Parts

Parts without Parts No. are not supplied

Les articles non mentionnés dans le Parts No. ne sont pas fournis

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
TS-140S/680S						
1	1H	+	A01-1032-02	CASE (UPPER)		
2	3R	+	A01-1033-02	CASE (LOWER)		
3	2F	+	A10-1286-01	CHASSIS		
4	3R	+	A11-0404-01	SUB CHASSIS		
5	2G	+	A20-2622-03	PANEL ASSY		B
5	2G	+	A20-2638-03	PANEL ASSY		A
6	1H	+	A22-0753-02	SUB PANEL		
7	2F	+	A23-1478-13	REAR PANEL		
8	1H	+	A33-0408-04	REFLECTOR		
13	2H	+	B01-0660-03	PANEL ESCUTCHEON ASSY		
14	2G	+	B10-1101-03	FRONT GLASS		B
14	2G	+	B10-1102-03	FRONT GLASS		A
15	2H	+	B11-0442-04	OPTICAL FIBER ASSY		
17	2H	+	B11-0450-04	FILTER		
18	1J		B30-0812-15	Pilot Lamp (14V, 80MA)		
19	1H	+	B31-0661-05	METER		
22	1F		B46-0410-20	WARRANTY CARD		
23	1K	+	B50-8199-20	INSTRUCTION MANUAL		
		+	B01-0659-03	ESCUTCHEON		
		+	B40-3782-04	MODEL NAME PLATE	M1W	
		+	B40-3799-04	MODEL NAME PLATE		B
		+	B10-3332-04	MODEL NAME PLATE	K	
11			CE454-101032	CERAMIC D. 010.3 2		
30	2D		E04-0162-05	RG COAXIAL CABLE REFLECTOR		
31	1J		E07-0251-05	2P DIN PLUG (CASEY)		
	1J		E10-2065-05	DC POWER CARD ASSY (CASEY)		
33	1J		E31-2154-05	CANNETTING WIRE (CASEY)		
34	1J		E07-1351-05	13P PLUG (CASEY)		
			E07-0052-15	8P METAL PLUG (M11)	FM	
		+	E31-3222-05	FLEXIBLE CABLE		
		+	E31-3298-05	FLEXIBLE CABLE		
		+	E31-3222-05	FLEXIBLE CABLE		
		+	E31-3300-05	FLEXIBLE CABLE		
31	1F		F05-2036-15	FUSE (COB)		
41	1H	+	F11-1069-02	SHIELDING COVER		
41	1F	+	F11-1080-04	SHIELDING COVER (SIGNAL WIRE)		
		+	F11-0818-24	SHIELDING COVER		
		+	F12-0652-04	BLIND PLATE (CLEAR PANEL)		B
			F21-0521-04	AMPLIFYING CIRCULATORY BOARD		
47	2G		G02-0505-05	KNOB FIXED SPRING		
48	1J, 1J	+	G02-0578-04	LEAF SPRING		
49	3R		G10-0610-04	FELT		
50	1H, 2H	+	G10-0656-04	FELT (CB)		
51	2F	+	G10-0660-04	FELT (FRONT)		
52	2F	+	G10-0668-04	FELT (SIGNAL UNIT)		
53	2F		G10-0633-04	FELT (CHASSIS SIDE)		
54	1H		G13-0684-04	CUSHION (SUB CHASSIS)		
55	2G		G13-0831-04	CUSHION (SIGNAL UNIT)		
56	2G	+	G13-0848-04	CUSHION (KNOB)		
57	2G, 2H	+	G13-0842-04	CUSHION (KNOB)		
58	2H	+	G13-0050-04	CUSHION (KNOB)		

E: Scandinavia & Europe K: USA

P: Canada

A : TS-140S (K,M,T,W)

B : TS-680S (K)

U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

⚠ indicates safety critical components

PARTS LIST

✕ New Parts

Parts without Parts No. are not supplied

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
59	2H	*	G13-0863-04	CUSHION (ESCUTCHEON)		
60	11	*	G13-0864-04	CUSHION (REFLECTOR)		
62	1A, 1B		G53-0509-04	PACKING (CASE SIDE)		
			G02-0565-04	FLAT SPRING		
			G11-0609-04	CUSHION (MIC)	FM	
			G13-0656-04	CUSHION (FLEXIBLE CABLE)		
			G13-0855-04	CUSHION (MIC)		
		*	G13-0885-04	CUSHION (FLEXIBLE CABLE)	W	
		*	G13-0891-04	CUSHION		
66	3K	*	H01-8146-04	CARTON BOX		A
66	3K	*	H01-8165-04	CARTON BOX		H
68	2J	*	H10-2633-02	PACKING FIXTURE (FRONT)		
69	2K	*	H10-2634-02	PACKING FIXTURE (REAR)		
70	2J		H12-1315-04	CUSHION		
71	2J	*	H12-1405-04	CUSHION (FRONT)		
72	2K		H20-1410-03	PROTECTIVE COVER		
73	1J		H25-0112-04	PROTECTIVE BAG (DI. FRNT)	FM	
74	1J		H25-0079-04	PROTECTIVE BAG (MIL)		
77	3H		J02-0323-05	FRONT (REAR)		
78	3A		J02-0440-04	ASSISTANT FRONT		
79	1A, 3A		J02-0441-05	FRONT (SMALL TYPE)		
80	3A, 3H		J02-0442-04	FRONT (FRONT)		
82	11, 2I		J21-2664-14	MOUNTING HARDWARE (SW)		
83	3A		J21-4208-04	MOUNTING HARDWARE (ASSIST. FRONT)		
84	1H		J31-0141-04	SPACER RING (MIL)		
85	1H		J32-0792-04	HEX BOLT		
86	2F		J42-0442-05	HOLE BUSHING		
87	2A	*	J50-0401-05	HINGE		
88	3I	*	J50-0402-05	HINGE		
			J13-0404-05	FUSE HOLDER (OF POWER CORD ASSEMBLY)		
			J61-0307-05	WIRE BAND		
92	1B		K01-0407-05	CARRIAGE HANDLE		
93	2G		K21-0778-02	MAIN KNOB		
94	2G		K23-0710-04	KNOB (INSIDE)		
95	2G		K29-0741-34	KNOB (OUTSIDE)		
96	1H		K29-0758-14	PUSH KNOB (POWER SW)		
97	2G	*	K29-3078-04	KNOB (LW SW)		
98	2G	*	K29-3079-04	KNOB (PWR. MTR. REG. (ON. NO. LEVEL))		
99	2G	*	K29-3080-14	KNOB (MUTE)		
100	2G	*	K29-3081-04	KNOB (A/D)		
101	2G	*	K29-3082-04	KNOB (SELECT)		
102	2G	*	K29-3083-04	KNOB (A-B)		
103	2G	*	K29-3084-04	KNOB (LSB/USH)		
104	2G	*	K29-3085-04	KNOB (CW/N)		
105	2G	*	K29-3086-04	KNOB (AM/FM)		
106	2G	*	K29-3087-04	KNOB (CLEAR)		
107	2G	*	K29-3088-04	KNOB (SCAN)		
108	2G	*	K29-3089-04	KNOB (V-F/N/M)		
109	2G	*	K29-3090-04	KNOB (F. LOCK)		
110	2G	*	K29-3091-04	KNOB (M-V)		
111	2G	*	K29-3092-04	KNOB (MUTE)		
112	2G	*	K29-3093-04	KNOB (BAND)		
113	2H	*	K29-3094-04	KNOB (NR. ETC)		

E: Scandinavia & Europe K: USA

P: Canada

U: PX (Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES (Europe)

X: Australia

A : TS-140S (K, M, T, W)

B : TS-680S (K)

△ indicates safety critical components

PARTS LIST

※ New Parts

Parts without Parts No. are not supplied

Les articles non mentionnés dans le Parts No. ne sont pas fournis

Teile ohne Parts No. werden nicht geliefert

Ref No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
120	3L		N15-1040-46	FLAT WASHER		
121	2G		N19-0637-04	FLAT WASHER (MAIN FRNH)		
A	2H		N09-0256-05	GND SCREW (SUB PANEL)		
B	3D		N09-0372-04	SCREW (PULLEY)		
C	1F		N88-2608-46	FLAT HEAD TAPITITE SCREW		
D	2G, 2H		N09-0644-14	BIND SCREW (FRONT GLASS)		
E	2F		N30-2606-41	PAN HEAD MACHINE SCREW		
F	3		N30-4014-41	PAN HEAD MACHINE SCREW (GND)		
G	2G, 11		N32-2606-46	FLAT HEAD MACHINE SCREW		
H	2A		N32-3006-46	FLAT HEAD MACHINE SCREW		
I	3L		N09-0623-04	SEMSU SCREW (50MHZ MODULE)		
J	10, 1B		N33-3006-41	NYAL HEAD MACHINE SCREW(CASE)		
K	3E, 2		N87-2606-46	BRAZIER HEAD TAPITITE SCREW		
L	2F		N87-3006-41	BRAZIER HEAD TAPITITE SCREW		
M	2A, 1		N87-3006-46	BRAZIER HEAD TAPITITE SCREW		
N	3D		N87-3006-41	BRAZIER HEAD TAPITITE SCREW		
O	2D		N88-3006-46	FLAT HEAD TAPITITE SCREW		
P	2D		N87-3010-41	BRAZIER HEAD TAPITITE SCREW (CONT)		
Q	2G		N20-2606-46	FLAT HEAD MACHINE SCREW		
R1			R5146H30560J	FL. PHONE RS. 176 11W		
122	1H		S40-2437-15	PUSH SWITCH (POWER)		
			S50-1406-05	SENSITIVE SWITCH (HMD/PHONE)	FM	
133	3F		102-0452-05	SPEAKER		
134	1J		121-0152-15	MICROPHONE	FM	
137	1J		W02-0802-05	ENCODER ASSY		
138	3F		W02-0515-05	LITHIUM BATTERY		
142	11, 1B		X41-3030-00	SWITCH UNIT		
143	11, 11		X41-3030-11	SWITCH UNIT		
144	11		X45-3100-00	FINAL UNIT		
144	11		X45-3100-11	FINAL UNIT		
145	2F, 1F		X51-3040-00	FILTER UNIT		
145	2F, 1F		X51-3040-11	FILTER UNIT		
146	3F		X53-3100-11	CONTROL UNIT		
146	3F		X53-3100-12	CONTROL UNIT		
147	11		X54-3050-00	DISPLAY UNIT	FM	
147	11		X54-3050-61	DISPLAY UNIT	W	
148	2F		X57-3190-00	SIGNAL UNIT		
148	2F		X57-3200-11	SIGNAL UNIT	FM	
149	2F		X57-3200-61	SIGNAL UNIT	W	
SWITCH UNIT (X41-3030-XX) -00 : TS-680S -11 : TS-140S						
152			CE04EY1F102M	CYLIND. CAP. C 100PF	M	
153			CE04EY1F101J	CYLIND. CAP. C 100PF	J	
154			CE04EW1H010M	ELECTRN 1.0UF	50WV	
155			CE04EY1F101J	CYLIND. CAP. C 100PF	J	
157			CE04EY1F222M	CYLIND. CAP. C 2200PF	M	
158			CE04EW1H4R2M	ELECTRN 4.2UF	50WV	
159			CE04EW1A470M	ELECTRN 4.7UF	10WV	
160	11		CE04EW1H010M	ELECTRN 1.0UF	50WV	
161			CE04EW1H100M	ELECTRN 10UF	50WV	
163			CE04EW1A470M	ELECTRN 4.7UF	10WV	
164			CE04EW1H4R2M	ELECTRN 4.2UF	50WV	
165			CE04EY1F101J	CYLIND. CAP. C 100PF	J	

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia

A : TS-140S (K,M,T,W)
B : TS-680S (K)

⚠ indicates safety critical components.

PARTS LIST

✕ New Parts

Parts without Parts No. are not supplied

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
C16 ,17 C18 C19			CE04EW1H010M CE04EW1H100M CE04EW1A470M	ELECTRO 1.0UF 50WV ELECTRO 10UF 50WV ELECTRO 47UF 10WV		A A A
CN1 CN2 CN3 CN4 CN5			E40-3241-05 E40-3237-05 E40-3239-05 E40-3237-05 E40-3239-05	PIN CONNECTOR (6P) PIN CONNECTOR (2P) PIN CONNECTOR (4P) PIN CONNECTOR (2P) PIN CONNECTOR (4P)		A
CN6 CN7 CN8 J1	11	*	E31-3307-05 E31-3306-05 E40-3247-05 E11-0413-05	CONNECTING WIRE(AF,SOL) CONNECTING WIRE(R1T,1F SHIFD) PIN CONNECTOR (3P) PHONE JACK		
R1 ,3 R4 R5 R6 R7			RD41FB2B103J RD41FB2B102J RD41FB2B021J RD41FB2B101J RD41FB2B223J	CYLND CHIP R 10k J 1/8W CYLND CHIP R 1.0k J 1/8W CYLND CHIP R 820 J 1/8W CYLND CHIP R 100 J 1/8W CYLND CHIP R 22k J 1/8W		
RB ,9 R10 R11 R12 ,13 R14			RD41FB2B101J RD41FB2B022J RD41FB2B023J RD41FB2B472J RD41FB2B332J	CYLND CHIP R 100 J 1/8W CYLND CHIP R 8.2k J 1/8W CYLND CHIP R 82k J 1/8W CYLND CHIP R 4.7k J 1/8W CYLND CHIP R 3.3k J 1/8W		
R15 R16 R17 R18 R19			RD41FB2B101J RD41FB2B221J RD41FB2B102J RD41FB2B101J RD41FB2B562J	CYLND CHIP R 100 J 1/8W CYLND CHIP R 220 J 1/8W CYLND CHIP R 1.0k J 1/8W CYLND CHIP R 100 J 1/8W CYLND CHIP R 5.6k J 1/8W		A A
R20 R21 R22 R23 VR1			RD41FB2B104J RD41FB2B103J RD41FB2B223J RD41FB2B102J R12-3127-05	CYLND CHIP R 100k J 1/8W CYLND CHIP R 10k J 1/8W CYLND CHIP R 22k J 1/8W CYLND CHIP R 1.0k J 1/8W TRIMMING POT. (10k)		A A A A
VR2 VR3 W1 11	21 11	*	R12-2411-05 R12-3424-05 R22-0670-05	POTENTIOMETER (AF,SOL) POTENTIOMETER (R1T,1F SHIFD) CHIP R 0 OHM		
D1 D2 ,3 IC1 Q1 3 Q4			1N60 RLS7J UPC1150H2 DTL114EK 2SA1162(Y)	DIODE CHIP DIODE 1L (ALC AMP) DIGITAL TRANSISTOR TRANSISTOR		
Q5 ,6 Q6			2SC2712(Y) 2SC2712(Y)	TRANSISTOR CHIP TRANSISTOR		A
FINAL UNIT (X45-3100-XX) -00 : TS-680S -11 : TS-140S						
C1 C9 C10 ,11 C12 C13			CK45R1N561K CM93D2H681J C91-1004-05 CC45SL2H151J CM73F2H122J	CERAMIC 560PF K MICA 680PF J CERAMIC 0.0068UF J CERAMIC 150PF J CHIP C 1200PF J		
C15 C16 C18 C21 C22			C91-0119-05 CE04EW1H100M CE04EW1F101M C91-0119-05 CE04EW1H100M	CERAMIC 0.047UF K ELECTRO 10UF 50WV ELECTRO 100UF 25WV CERAMIC 0.047UF K ELECTRO 10UF 50WV		

E: Scandinavia & Europe K: USA P: Canada
 U: PX(Far East, Hawaii) T: England M: Other Areas
 UE: AAFES(Europe) X: Australia

A : TS-140S (K,M,T,W)
 B : TS-680S (K)

▲ indicates safety critical components.

PARTS LIST

✱ New Parts

Parts without Parts No. are not supplied

Les articles non mentionnés dans le Parts No. ne sont pas fournis

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
C24			CE04EW1E101M	ELECTR 100UF 25WV		
C28			CE04EW1E470M	ELECTR 47UF 25WV		
C32, C33			C90-0817-05	ELECTR 1000UF 16WV		
C36			CE04EW1E470M	ELECTR 47UF 25WV		
C37			C91-0119-05	CERAMIC 0.047UF K		
C38			CE04EW1E470M	ELECTR 47UF 25WV		
C40, C41			CE04EW1E470M	ELECTR 47UF 25WV		
C42			C91-0119-05	CERAMIC 0.047UF K		
C43			C45G12H121J	CERAMIC 120PF J		
			E31-2067-05	COAXIAL CABLE WITH PLUG (50Ω)		B
			E31-3028-05	COAXIAL CABLE WITH PLUG (75Ω)		
			E31-3304-05	COAXIAL CABLE WITH PLUG (DRV)		
			E31-3322-05	CONNECTING WIRE		
			E31-3324-05	CONNECTING WIRE (CAN)		
			E31-3327-05	CONNECTING WIRE		
EN1			E40-3238-05	PIN CONNECTOR (3P)		
EN2			E40-3239-05	PIN CONNECTOR (4P)		
EN3			E40-3238-05	PIN CONNECTOR (3P)		
EN4			E31-3317-05	CONNECTING WIRE		B
EN5			E40-3237-05	PIN CONNECTOR (2P)		
F58	U		F22-0014-05	INSULATOR		
F62	2D		F01-0954-01	HEAT SINK		
F72	U		F02-0412-05	FAN (MAINR)		
			F20-0078-05	INSULATING BOARD		
			F20-0582-04	INSULATING BOARD		
F76	2D		G02-0574-04	FLAT SPRING		
			G02-0571-04	FLAT SPRING (1/2)		
			L22-0102-05	TRIADAL CORE (K141)		
			L22-0106-05	TRIADAL CORE (K141)		
L1			L40-1501-14	SMALL FIXED INDUCTOR		
L2			L40-3391-14	SMALL FIXED INDUCTOR		
L3			L19-0315-25	TRIADAL CORE		
L4, L5			L33-0622-05	CHUNKY CORE (100)		
L6, L7			L33-0634-05	CHUNKY CORE (100)		
L8			L33-0622-05	CHUNKY CORE (100)		
L9			L19-0342-05	DRIVE TRANSFORMER		
L10, L11			L33-0617-05	TRIADAL CORE		
L12			L39-0424-05	NEE CORE		
L13			L39-0431-05	TRIADAL CORE		
L14			L33-0651-05	CHUNKY CORE		
L15			L33-0612-05	TRIADAL CORE		
L16			L40-1011-14	SMALL FIXED INDUCTOR		
L17			L15-0016-05	LOW-FREQUENCY CHUNKY CORE		
N	U, 1D		N87-3008-46	BRAZIER HEAD TAPTITE SCREW		
N1	U		N09-0623-04	SCREW		
N1	2A		N85-3006-46	BINDING HEAD MACHINE SCREW		
RS			RS14DB3A181J	FL-PRNDF RS 3.2 J 1/2W		
RB, R2			RS14DB3A181J	FL-PRNDF RS 100 J 1W		
R10, R13			RS14DB3A5R6J	FL-PRNDF RS 5.6 J 1W		
R14, R15			RS14DB3A150J	FL-PRNDF RS 15 J 1W		
R16, R17			RS14DB3A3R3J	FL-PRNDF RS 3.3 J 1W		
R18			RS14DB3A100J	FL-PRNDF RS 10 J 1W		

FOR SERVICE MANUALS

CONTACT:

MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

E: Scandinavia & Europe K: USA

P: Canada

U: PX(Far East, Hawaii) T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

A : TS-140S (K,M,T,W)

B : TS-680S (K)

△ indicates safety critical components.

PARTS LIST

※ New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
VR1 .2 W1 W2 .3			R12-1431-05 R92-0150-05 R92-1061-05	TRIMMING PNT. (1K) JUMPER RES 0 OHM JUMPER RES 0 OHM		A
K1			S51-2417-05	RELAY		B
D1 D2 .3 D4 D5 D6		*	MV-5T SV-03YS 1S1555 1S1555 SG-SL(R)	VARISTOR VARISTOR DIODE DIODE DIODE		H
D7 Q1 Q2 .3 Q4 .5 Q6 .7			MTZ8.2JA 2SC1971 2SC2509 2SC2879 2SD1406(Y)	ZENER DIODE TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q8 .9 TH1			AN7805 5TP411	IC (VOLTAGE REGULATOR/ +5V) THERMISTOR		
192	1D	*	X59 3370-00	MODULE UNIT		
FILTER UNIT (X51-3040-XX) -00: TS-680S -11: TS-140S						
C1 C2 C3 C4 C5			CM93D2H152J CM93D2H471J CM93D2H152J CM93D2H221J CM93D2H821J	MICA MICA MICA MICA MICA	1500PF 470PF 1500PF 220PF 820PF	J
C6 C7 C8 .9 C10 C11			CC45SL2H431J CC45SL2H241J CC45SL2H431J CC45SL2H151J CC45SL2H331J	CERAMIC CERAMIC CERAMIC CERAMIC CERAMIC	430PF 240PF 430PF 150PF 330PF	J
C12 C13 C14 C15 C16			CC45SL2H820J CC45SL2H331J CC45SL2H101J CC45SL2H431J CC45SL2H331J	CERAMIC CERAMIC CERAMIC CERAMIC CERAMIC	82PF 330PF 100PF 430PF 330PF	J
C17 C18 C19 .20 C21 C22			CC45SL2H151J CC45SL2H330J CC45SL2H151J CC45SL2H121J CC45SL2H181J	CERAMIC CERAMIC CERAMIC CERAMIC CERAMIC	150PF 33PF 150PF 120PF 180PF	J
C23 C24 C25 C26 C27			CC45SL2H820J CC45SL2H680J CC45SL2H181J CC45SL2H121J CC45SL2H101J	CERAMIC CERAMIC CERAMIC CERAMIC CERAMIC	82PF 68PF 180PF 120PF 100PF	J
C28 C29 C30 C31 C32			CC45SL2H470J CC45SL2H680J CC45SL2H330J CC45SL2H820J CC45SL2H600J	CERAMIC CERAMIC CERAMIC CERAMIC CERAMIC	47PF 68PF 33PF 82PF 60PF	J
C33 C34 C35 .36 C37 C38			CC45SL2H100D CC45SL2H820J CC45SL2H330J CC45SL2H270J CC45SL2H120J	CERAMIC CERAMIC CERAMIC CERAMIC CERAMIC	10PF 82PF 33PF 27PF 12PF	D J J J J

E: Scandinavia & Europe K: USA

P: Canada

U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

A : TS-140S (K,M,T,W)

B : TS-680S (K)

⚠ Indicates safety critical components.

PARTS LIST

✕ New Parts

Parts without Parts No. are not supplied

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
E39			CC45SL2H270J	CERAMIC 27PF J		B
E40			CC45SL2H330J	CERAMIC 33PF J		
E42			CC45SL2H560J	CERAMIC 56PF J		B
E66			CC45CH2H030J	CERAMIC 3.0PF J		
E67			CC45CH1H560J	CERAMIC 56PF J		
E68			CC45CH1H101J	CERAMIC 100PF J		
E72			CC45CH1H680J	CERAMIC 68PF J		B
E80			CC45B1H472K	CERAMIC 4700PF K		B
E81			CE04EW1F470M	ELECTRON 47UF 25WV		B
E83			CE04EW1H3R3M	ELECTRON 3.3R 50WV		B
E84			CC45B1H472K	CERAMIC 4700PF K		B
F11			705-0309-05	TRIMMING CAP (40P)		B
F12			705-0030-15	TRIMMING CAP (20P)		
F41			740-3238-05	PIN CONNECTOR (3P)		
F42			740-3238-05	PIN CONNECTOR (3P)		B
F43			740-3242-05	PIN CONNECTOR (4P)		
F44			740-3239-05	PIN CONNECTOR (4P)		
F45			733-0157-05	PIN CONNECTOR		
F46			704-0157-05	PIN CONNECTOR		B
F47			710-5059-05	PIN CONNECTOR (4P)		
F48			731-3330-15	CONNECTING WIRE		
F49			740-5059-05	PIN CONNECTOR (4P)		
F91			732-0761-04	BASE		
F92			727-0102-05	TRIMMER UNIT (K1-41)		
F93			727-0107-05	TRIMMER UNIT (P50-7)		
F94			727-0108-05	TRIMMER UNIT (P50-7)		
F95			734-3148-05	TRIMMER UNIT		
F96			734-3147-05	TRIMMER UNIT		
F97			734-3150-05	TRIMMER UNIT		
F98			733-3149-05	TRIMMER UNIT		
F99			734-3152-05	TRIMMER UNIT		
F100			734-3151-05	TRIMMER UNIT		
F101			734-3153-05	TRIMMER UNIT		
F102			734-3154-05	TRIMMER UNIT		
F103			734-3156-05	UNIT		
F104			734-3157-05	UNIT		
F105			734-3158-05	UNIT		
F106			731-1021-05	UNIT		B
F107			733-0722-05	UNIT		B
F108			731-1022-05	UNIT		B
F109			734-1027-05	UNIT		B
F110			732-0406-05	TRIMMER UNIT		
F111			733-0751-05	TRIMMER UNIT		B
F112			740-1011-14	SMALL FIXED INDUCTOR		
F113			740-1011-14	SMALL FIXED INDUCTOR		B
F114			740-1021-14	SMALL FIXED INDUCTOR		
F115			740-1011-14	SMALL FIXED INDUCTOR		B
F116			740-1011-14	SMALL FIXED INDUCTOR		
F117			740-7825-04	SMALL FIXED INDUCTOR		
F118			N30-3006-46	FAN HEAD MACHINE SCREW		
F119			R12-0431-05	TRIMMING POT. (100)		
F120			R92-0150-05	JUMPER RESISTOR 0.64M		

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844-351694
FAX: 01844-352554

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia

⚠ indicates safety critical components.

PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.


Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
W20			R92-0150-05	JUMPER REST 0 NHM		A
K1 -12			SS1-1432-05	RELAY		B
K13 -15			SS1-1432-05	RELAY		
K16			SS1-1429-05	RELAY		
D1 -6			1S1555	DIODE		B
D7			1S1555	DIODE		
D8			1S1555	DIODE		
D9 -10			1SS101	DIODE		
D11			DSP-301N	SURGE ABSORBER		
Q1			2SC2538-22-A	TRANSISTOR		B
Q2			M57735	IC (POWER MODULE)		H
Q3			2SC2459 (BL)	TRANSISTOR		
CONTROL UNIT (X53-3100-XX) -11 : TS-140S -12 : TS-680S						
C2			CE04EW1C470M	ELECTR 47UF 16WV		
C3 -4			CK41FY1E102M	CYLN CHIP C 1000PF M		
C5			CO92M1H473K	MYLAR 0.047UF K		
C6			CO92M1H223K	MYLAR 0.022UF K		
C7			CK41FY1F222M	CYLN CHIP C 2200PF M		
C9			CE04EW1C470M	ELECTR 47UF 16WV		
C10			CC41FU1H220J	CYLN CHIP C 22PF J		
C11			CC41FCH1H100D	CYLN CHIP C 10PF D		
C13			CC41FCH1H150J	CYLN CHIP C 15PF J		
C14			CC41FCH1H120J	CYLN CHIP C 12PF J		
C15			CC41FCH1H050C	CYLN CHIP C 5.0PF C		
C16			CK41FY1E102M	CYLN CHIP C 1000PF M		
C17			CE04EW1C470M	ELECTR 47UF 16WV		
C18 -19			CK41FY1E102M	CYLN CHIP C 1000PF M		
C21			CK41FY1E102M	CYLN CHIP C 1000PF M		
C23			CE04EW1C220M	ELECTR 22UF 16WV		
C25			CK41FB1H391K	CYLN CHIP C 390PF K		
C26			CK41FB1H821M	CYLN CHIP C 820PF M		
C27			CK41FB1H391K	CYLN CHIP C 390PF K		
C30			CE04EW1C220M	ELECTR 22UF 16WV		
C33			CC41FSL1H330J	CYLN CHIP C 33PF J		
C34			CC41FSL1H680J	CYLN CHIP C 68PF J		
C35			CC41FSL1H330J	CYLN CHIP C 33PF J		
C38			CE04EW1C470M	ELECTR 47UF 16WV		
C40			CK41FY1E102M	CYLN CHIP C 1000PF M		
C41			CO92M1H223K	MYLAR 0.022UF K		
C42			CO92M1H103K	MYLAR 0.010UF K		
C43			CK41FY1F222M	CYLN CHIP C 2200PF M		
C45			CE04EW1C470M	ELECTR 47UF 16WV		
C46			CC41FCH1H100D	CYLN CHIP C 10PF D		
C48			CC41FCH1H220J	CYLN CHIP C 22PF J		
C49			CC73FCH1H270J	CHIP C 27PF J		
C50			CC41FCH1H050C	CYLN CHIP C 5.0PF C		
C52			CE04EW1C470M	ELECTR 47UF 16WV		
C58			CC41FSL1H270J	CYLN CHIP C 27PF J		
C59			CC41FSL1H560J	CYLN CHIP C 56PF J		
C60			CC41FSL1H270J	CYLN CHIP C 27PF J		
C72			CK41FA1H181K	CYLN CHIP C 180PF K		
C73			CK41FB1H391K	CYLN CHIP C 390PF K		
C74			CK41FA1H181K	CYLN CHIP C 180PF K		

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia

A : TS-140S (K,M,T,W)
B : TS-680S (K)

 Indicates safety critical components

PARTS LIST

※ New Parts

Parts without Parts No. are not supplied

Les articles non mentionnés dans le Parts No. ne sont pas fournis

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
C72			CC41FCH1H030J	CYLND CHIP C 3.0PF		
C73			CC73FCH1H560J	CHIP C 56PF		
C79			CC41FCH1H180J	CYLND CHIP C 18PF		
C80			CC41FCH1H020J	CYLND CHIP C 2.0PF		
C82			CE04EW1C470M	ELECTRN 470F 16WV		
C82-8B			CC41FSL1H560J	CYLND CHIP C 56PF		
C90			CC41FSL1H330J	CYLND CHIP C 33PF		
C91			CC41FSL1H560J	CYLND CHIP C 56PF		
C92			CC41FSL1H330J	CYLND CHIP C 33PF		
C99			CC41FCH1H020J	CYLND CHIP C 2.0PF		
C101			CC41FCH1H030J	CYLND CHIP C 3.0PF		
C102			CC41FCH1H100J	CYLND CHIP C 10PF		
C110-111			CC41FCH1H010J	CYLND CHIP C 1.0PF		
C118-119			CC41FCH1H040J	CYLND CHIP C 4.0PF		
C121			CC41FCH1H150J	CYLND CHIP C 15PF		
C124			CC41FSL1H560J	CYLND CHIP C 56PF		
C125			CC41FSL1H121J	CYLND CHIP C 120PF		
C126			CC41FSL1H560J	CYLND CHIP C 56PF		
C133			CE41FY1F102M	CYLND CHIP C 1000PF		
C134-135			CC41FCH1H0R5J	CYLND CHIP C 0.5PF		
C136			CE41FY1F102M	CYLND CHIP C 1000PF		
C138-139			CC41FCH1H010J	CYLND CHIP C 1.0PF		
C144			CE41FY1F102M	CYLND CHIP C 1000PF		
C153			CC41FCH1H030J	CYLND CHIP C 3.0PF		
C154			CC41FCH1H150J	CYLND CHIP C 15PF		
C155			CC41FCH1H040J	CYLND CHIP C 4.0PF		
C156			CC41FCH1H150J	CYLND CHIP C 15PF		
C157			CC41FCH1H040J	CYLND CHIP C 4.0PF		
C158			CC41FCH1H150J	CYLND CHIP C 15PF		
C159			CC41FCH1H030J	CYLND CHIP C 3.0PF		
C162			CC73FCH1H560J	CHIP C 56PF		
C166			CE04EW1C470M	ELECTRN 470F 16WV		
C167-168			CE41FY1F102M	CYLND CHIP C 1000PF		
C169			CC41FCH1H0R5J	CYLND CHIP C 0.5PF		
C170			CE22M1H103K	MYLAR 0.0100F		
C171			91-10B3-05	FILM 0.470F 63WV		
C173			CE04EW1C470M	ELECTRN 1000F 16WV		
C177			CE04EW1C470M	ELECTRN 470F 16WV		
C179			CE41FY1F102M	CYLND CHIP C 1000PF		
C180			CE92M1H223K	MYLAR 0.00220F		
C181			C21-1101-05	FILM 0.220F 63WV		
C182			CE04EW1H100M	ELECTRN 100F 50WV		
C183			C21-0112-05	PERMID 3.010		
C184			ES1SE19R47M	TANTAL 0.470F 35WV		
C186			CE04EW1C470M	ELECTRN 470F 16WV		
C187			CE45R1H182F	PERMIL 1800PF		
C188			CC41FCH1H070J	CYLND CHIP C 7.0PF		
C189			CC41FCH1H100J	CYLND CHIP C 10PF		
C191-192			CC73FCH1H330J	CHIP C 33PF		
C193			CC41FCH1H050J	CYLND CHIP C 5.0PF		
C195			CE04EW1C470M	ELECTRN 470F 16WV		
C197			CC41FCH1H120J	CYLND CHIP C 12PF		
C198			CC41FCH1H100J	CYLND CHIP C 10PF		
C201			CC41FSL1H270J	CYLND CHIP C 27PF		
C202			CC41FCH1H220J	CYLND CHIP C 22PF		

E: Scandinavia & Europe

K: USA

P: Canada

A : TS-140S (K,M,T,W)

B : TS-680S (K)

U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

▲ indicates safety critical components

PARTS LIST

* New Parts

Parts without Parts No. are not supplied

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
C203 C204-209 C215 C217 C220			CC41FSL1H270J CC41FSL1H101J CE04EW1C470M CE04EW1C101M CK41FB1H471K	CYLND CHIP C 27PF J CYLND CHIP C 100PF J ELECTR0 47UF 16WV ELECTR0 100UF 16WV CYLND CHIP C 470PF K		
C221-222 C223 C224 C229 C232			CC73FCH1H270J CC41FCH1H100D CK73FB1H332K CE04EW1C470M C90-2041-05	CHIP C 27PF J CYLND CHIP C 10PF D CHIP C 3300PF K ELECTR0 47UF 16WV ELECTR0 10UF 10WV		
C234 C237 C260-267 C273-274 C277-278			CE04EW1C470M CE04EW1C470M CK41FB1H471K CK41FB1H471K CK41FY1E102M	ELECTR0 47UF 16WV ELECTR0 47UF 16WV CYLND CHIP C 470PF K CYLND CHIP C 470PF K CYLND CHIP C 1000PF M		
C280-283 C286-293 TC1			CK41FY1E102M CC41FSL1H101J C05-0309-05	CYLND CHIP C 1000PF M CYLND CHIP C 100PF J TRIMMING CAP (40PF)		
CN1 CN2 CN3 CN4			E23-0512-05 E40-3237-05 E40-3238-05 E04-0157-05 E40-3238-05	TERMINAL PIN CONNECTOR (2P) PIN CONNECTOR (3P) RF COAXIAL CABLE RECEPTACLE PIN CONNECTOR (3P)		
CN5 CN6 CN7 CN8 CN9			E40-3237-05 E04-0157-05 E40-3237-05 E40-3242-05 E40-5066-05	PIN CONNECTOR (2P) RF COAXIAL CABLE RECEPTACLE PIN CONNECTOR (2P) PIN CONNECTOR (7P) PIN CONNECTOR (9P)		
CN10 CN11 CN12 CN13 CN14		*	E40-5141-05 E40-5133-05 E40-3239-05 E40-3240-05 E40-3238-05	PFC CONNECTOR (26P) PFC CONNECTOR (18P) PIN CONNECTOR (4P) PIN CONNECTOR (5P) PIN CONNECTOR (3P)		
CN15			F02-2001-05	IC SOCKET (28P)		
A1-4 A5 A6 A9-12			F11-0812-04 F10-1222-14 F11-1021-04 F10-1344-04	SHIELDING COVER SHIELDING COVER SHIELDING COVER SHIELDING PLATE		
L1 L2 L3 L4-5 L6-7			L40-1011-14 L40-1001-14 L32-0666-15 L40-1011-14 L40-3311-14	SMALL FIXED INDUCTOR SMALL FIXED INDUCTOR COIL (VCR 21MHZ) SMALL FIXED INDUCTOR SMALL FIXED INDUCTOR		
L8-9 L10 L11 L12 L13-14			L40-3301-17 L40-1011-14 L40-1501-14 L32-0649-05 L40-1011-14	SMALL FIXED INDUCTOR SMALL FIXED INDUCTOR SMALL FIXED INDUCTOR COIL (VCR 55MHZ) SMALL FIXED INDUCTOR		
L15-16 L17 L18 L19 L20		*	L40-2201-17 L34-4053-05 L34-4054-15 L34-4053-05 L40-1011-14	SMALL FIXED INDUCTOR COIL (10MHZ BPF) COIL (10MHZ BPF) COIL (10MHZ BPF) SMALL FIXED INDUCTOR		

FOR SERVICE MANUALS

CONTACT:

MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

E: Scandinavia & Europe K: USA

P: Canada

U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

A : TS-140S (K,M,T,W)

B : TS-680S (K)

△ indicates safety critical components

PARTS LIST

× New Parts

Parts without Parts No. are not supplied

Les articles non mentionnés dans le Parts No. ne sont pas fournis

Teile ohne Parts No. werden nicht geliefert.

Ref. No.	Address	New Parts	Parts No.	Description	Desti- nation	Re- marks
参照番号	位置	新	部品番号	部品名 / 規格	仕向	備考
L21 ~ L24			L40-1211-17	SMALL FIXED INDUCTOR		
L25 ~ L28			L40-1011-14	SMALL FIXED INDUCTOR		
L29 ~ L32			L40-2201-17	SMALL FIXED INDUCTOR		
L33 ~ L36			L40-3301-17	SMALL FIXED INDUCTOR		
L37 ~ L40			L34-4055-05	COIL (5.5MHZ BPF)		
L41 ~ L44			L34-4057-05	COIL (78MHZ BPF)		
L45 ~ L48			L40-1011-14	SMALL FIXED INDUCTOR		
L49 ~ L52			L40-1292-17	SMALL FIXED INDUCTOR		
L53 ~ L56			L40-2201-17	SMALL FIXED INDUCTOR		
L57 ~ L60			L34-4056-05	COIL (37MHZ BPF)		
L61 ~ L64			L34-4057-05	COIL (78MHZ BPF)		
L65 ~ L68			L40-3391-17	SMALL FIXED INDUCTOR		
L69 ~ L72			L40-3391-17	SMALL FIXED INDUCTOR		
L73 ~ L76			L40-3391-17	SMALL FIXED INDUCTOR		
L77 ~ L80			L40-1011-14	SMALL FIXED INDUCTOR		
L81 ~ L84			L40-2211-14	SMALL FIXED INDUCTOR		
L85 ~ L88			L40-2201-14	SMALL FIXED INDUCTOR		
L89 ~ L92			L34-4050-05	COIL (5.0MHZ BPF)		
L93 ~ L96			L40-1011-14	SMALL FIXED INDUCTOR		
L97 ~ L100			L34-1124-05	COIL		
L101 ~ L104			L40-1011-14	SMALL FIXED INDUCTOR		
L105 ~ L108			L40-1011-13	SMALL FIXED INDUCTOR		
L109 ~ L112			L40-1011-13	SMALL FIXED INDUCTOR		
L113 ~ L116			L40-1011-14	SMALL FIXED INDUCTOR		
L117 ~ L120			L27-1292-05	CRYSTAL RESONATOR (3.5MHz)		
L121 ~ L124			L28-0015-05	RESONATOR (2.45MHz)		
R1			RD41FB2205	CYLIND CHIP R 22K	J 1/8W	
R2			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R3			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R4			RD41FB2395	CYLIND CHIP R 39K	J 1/8W	
R5			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R6			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R7			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R8			RD41FB2205	CYLIND CHIP R 22K	J 1/8W	
R9			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R10			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R11			RD41FB2205	CYLIND CHIP R 22K	J 1/8W	
R12			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R13			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R14			RD41FB2405	CYLIND CHIP R 40K	J 1/8W	
R15			RD41FB2205	CYLIND CHIP R 22K	J 1/8W	
R16 ~ R19			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R20 ~ R23			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R24 ~ R27			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R28 ~ R31			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R32 ~ R35			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R36 ~ R39			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R40 ~ R43			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R44 ~ R47			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R48 ~ R51			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R52 ~ R55			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R56 ~ R59			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R60 ~ R63			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R64 ~ R67			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R68 ~ R71			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R72 ~ R75			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R76 ~ R79			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R80 ~ R83			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R84 ~ R87			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R88 ~ R91			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R92 ~ R95			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R96 ~ R99			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R100 ~ R103			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R104 ~ R107			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R108 ~ R111			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R112 ~ R115			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R116 ~ R119			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R120 ~ R123			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R124 ~ R127			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R128 ~ R131			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R132 ~ R135			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R136 ~ R139			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R140 ~ R143			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R144 ~ R147			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R148 ~ R151			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R152 ~ R155			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R156 ~ R159			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R160 ~ R163			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R164 ~ R167			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R168 ~ R171			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R172 ~ R175			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R176 ~ R179			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R180 ~ R183			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R184 ~ R187			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R188 ~ R191			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R192 ~ R195			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R196 ~ R199			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R200 ~ R203			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R204 ~ R207			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R208 ~ R211			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R212 ~ R215			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R216 ~ R219			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R220 ~ R223			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R224 ~ R227			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R228 ~ R231			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R232 ~ R235			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R236 ~ R239			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R240 ~ R243			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R244 ~ R247			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R248 ~ R251			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R252 ~ R255			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R256 ~ R259			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R260 ~ R263			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R264 ~ R267			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R268 ~ R271			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R272 ~ R275			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R276 ~ R279			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R280 ~ R283			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R284 ~ R287			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R288 ~ R291			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R292 ~ R295			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R296 ~ R299			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R300 ~ R303			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R304 ~ R307			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R308 ~ R311			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R312 ~ R315			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R316 ~ R319			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R320 ~ R323			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R324 ~ R327			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R328 ~ R331			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R332 ~ R335			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R336 ~ R339			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R340 ~ R343			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R344 ~ R347			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R348 ~ R351			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R352 ~ R355			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R356 ~ R359			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R360 ~ R363			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R364 ~ R367			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R368 ~ R371			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R372 ~ R375			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R376 ~ R379			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R380 ~ R383			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R384 ~ R387			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R388 ~ R391			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R392 ~ R395			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R396 ~ R399			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R400 ~ R403			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R404 ~ R407			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R408 ~ R411			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R412 ~ R415			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R416 ~ R419			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R420 ~ R423			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R424 ~ R427			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R428 ~ R431			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R432 ~ R435			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R436 ~ R439			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R440 ~ R443			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R444 ~ R447			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R448 ~ R451			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R452 ~ R455			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R456 ~ R459			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R460 ~ R463			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R464 ~ R467			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R468 ~ R471			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R472 ~ R475			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R476 ~ R479			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R480 ~ R483			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R484 ~ R487			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R488 ~ R491			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R492 ~ R495			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R496 ~ R499			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R500 ~ R503			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R504 ~ R507			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R508 ~ R511			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R512 ~ R515			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R516 ~ R519			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R520 ~ R523			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R524 ~ R527			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R528 ~ R531			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R532 ~ R535			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R536 ~ R539			RD41FB2105	CYLIND CHIP R 10K	J 1/8W	
R540 ~ R543			RD41FB2105	CYLIND CHIP R 10K</		

PARTS LIST

× New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis

Teile ohne Parts No. werden nicht geliefert.


Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
R31			RD41FB2B182J	CYLND CHIP R 1.8K J 1/8W		
R32			RD41FB2B823J	CYLND CHIP R 82K J 1/8W		
R33			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R34			RD41FB2B102J	CYLND CHIP R 1.0K J 1/8W		
R35			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R36			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R37			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R38			RD41FB2B102J	CYLND CHIP R 1.0K J 1/8W		
R39			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R40			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R41			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R42			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R43			RD41FB2B392J	CYLND CHIP R 3.9K J 1/8W		
R44			RD41FB2B182J	CYLND CHIP R 1.8K J 1/8W		
R45			RD41FB2B681J	CYLND CHIP R 680 J 1/8W		
R46			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R47			RD41FB2B681J	CYLND CHIP R 680 J 1/8W		
R48			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R49			RD41FB2B333J	CYLND CHIP R 33K J 1/8W		
R50			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R52			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R53			RD41FB2B472J	CYLND CHIP R 4.7K J 1/8W		
R54			RD41FB2B332J	CYLND CHIP R 3.3K J 1/8W		
R55			RD41FB2B181J	CYLND CHIP R 180 J 1/8W		
R56			RD41FB2B222J	CYLND CHIP R 2.2K J 1/8W		
R57			RD41FB2B681J	CYLND CHIP R 680 J 1/8W		
R58			RD41FB2B562J	CYLND CHIP R 5.6K J 1/8W		
R59			RD41FB2B682J	CYLND CHIP R 6.8K J 1/8W		
R60			RD41FB2B561J	CYLND CHIP R 560 J 1/8W		
R61			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R62			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R63			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R64			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R65			RD41FB2B472J	CYLND CHIP R 4.7K J 1/8W		
R66			RD41FB2B332J	CYLND CHIP R 3.3K J 1/8W		
R67			RD41FB2B181J	CYLND CHIP R 180 J 1/8W		
R68			RD41FB2B102J	CYLND CHIP R 1.0K J 1/8W		
R69			RD41FB2B681J	CYLND CHIP R 680 J 1/8W		
R70			RD41FB2B182J	CYLND CHIP R 1.8K J 1/8W		
R71			RD41FB2B681J	CYLND CHIP R 680 J 1/8W		
R72			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R74			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R75			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R76			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R78			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R79			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R80			RD41FB2B221J	CYLND CHIP R 220 J 1/8W		
R81			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R82			RD41FB2B102J	CYLND CHIP R 1.0K J 1/8W		
R83			RD41FB2B681J	CYLND CHIP R 680 J 1/8W		
R84			RD41FB2B331J	CYLND CHIP R 330 J 1/8W		
R85			RD41FB2B272J	CYLND CHIP R 2.7K J 1/8W		
R86			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R87			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R88			RD41FB2B332J	CYLND CHIP R 3.3K J 1/8W		

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia

A : TS-140S (K,M,T,W)
B : TS-680S (K)

 indicates safety critical components.

PARTS LIST

✕ New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
R89			RD41FB2B122J	CYLND CHIP R 1.2K J 1/8W		
R90			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R91			RD41FB2B122J	CYLND CHIP R 1.2K J 1/8W		
R92			RD41FB2B181J	CYLND CHIP R 180 J 1/8W		
R93			RD41FB2B561J	CYLND CHIP R 560 J 1/8W		
R94			RD41FB2B181J	CYLND CHIP R 180 J 1/8W		
R95			RD41FB2B561J	CYLND CHIP R 560 J 1/8W		
R96			RD41FB2B681J	CYLND CHIP R 680 J 1/8W		
R97			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R98			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R99			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R101			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R102			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R103			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R104			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R105			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R106, 107			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R108			RD41FB2B681J	CYLND CHIP R 680 J 1/8W		
R109			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R110			RD41FB2B333J	CYLND CHIP R 33K J 1/8W		
R111			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R112			RD41FB2B220J	CYLND CHIP R 22 J 1/8W		
R113			RD41FB2B681J	CYLND CHIP R 680 J 1/8W		
R114			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R115			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R116			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R117, 118			RD41FB2B182J	CYLND CHIP R 1.8K J 1/8W		
R119			RD41FB2B102J	CYLND CHIP R 1.0K J 1/8W		
R121			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R122, 123			RD41FB2B472J	CYLND CHIP R 4.7K J 1/8W		
R124			RD41FB2B123J	CYLND CHIP R 1.2K J 1/8W		
R125			RD41FB2B182J	CYLND CHIP R 1.8K J 1/8W		
R126			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R127			RD41FB2B331J	CYLND CHIP R 330 J 1/8W		
R128			RD41FB2B392J	CYLND CHIP R 3.9K J 1/8W		
R129			RD41FB2B104J	CYLND CHIP R 100K J 1/8W		
R130			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R131			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R132			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R133			RD41FB2B102J	CYLND CHIP R 1.0K J 1/8W		
R134			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R135			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R136			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R137			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R138			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R139			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R140			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R141			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R142, 148			RD41FB2B221J	CYLND CHIP R 220 J 1/8W		
R149			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R150			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R151			RD41FB2B220J	CYLND CHIP R 22 J 1/8W		
R152, 153			RD41FB2B105J	CYLND CHIP R 1.0M J 1/8W		
R154			RD41FB2B104J	CYLND CHIP R 100K J 1/8W		
R155			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		

E: Scandinavia & Europe K: USA

P: Canada

A : TS-140S (K,M,T,W)

B : TS-680S (K)

U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

⚠ Indicates safety critical components.

PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
R156			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R157			RD41FB2B184J	CYLND CHIP R 180K J 1/8W		
R158			RD41FB2B472J	CYLND CHIP R 4.7K J 1/8W		
R159			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R160			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R163			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R164			RD41FB2B474J	CYLND CHIP R 470K J 1/8W		
R165			RD41FB2B104J	CYLND CHIP R 100K J 1/8W		
R166			RD41FB2B183J	CYLND CHIP R 18K J 1/8W		
R167-169			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R170-183			RD41FB2B102J	CYLND CHIP R 1.0K J 1/8W		
R184-188			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R189-193			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R194			RD41FB2B274J	CYLND CHIP R 270K J 1/8W		
R195			RD41FB2B684J	CYLND CHIP R 680K J 1/8W		
R196			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R197			RD41FB2B274J	CYLND CHIP R 270K J 1/8W		
R198			RD41FB2B684J	CYLND CHIP R 680K J 1/8W		
R199, 200			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R201, 202			RD41FB2B472J	CYLND CHIP R 4.7K J 1/8W		
R203, 204			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R205, 206			RD41FB2B123J	CYLND CHIP R 12K J 1/8W		
R207, 208			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R209			RD41FB2B472J	CYLND CHIP R 4.7K J 1/8W		
R210			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R211			RD41FB2B684J	CYLND CHIP R 680K J 1/8W		
R212			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
VR1 .2		+	R12-1067-05	TRIMMING PNT. (2.2K)		
VR3 .4			R12-3096-05	TRIMMING PNT. (10K)		
W2 .3			R92-1061-05	JUMPER RES. 0.1NM		
D1			1SV53A	VARICAP DIODE		
D2 .3			1T1310TE	VARICAP DIODE		
D4 .6			RLS135	CHIP DIODE		
D7 .8			RLS73	CHIP DIODE		
D9 .15			RLS135	CHIP DIODE		
D16			RLS73	CHIP DIODE		
D17			1SV153	VARICAP DIODE		
D18 21			RLS73	CHIP DIODE		
D24 27			RLS73	CHIP DIODE		
D29			1GS133	DIODE		
D31			1SS133	DIODE		
IC1		+	M54927P	IC (FREQ SYNTHESIZER PLL)		
IC2			M54457L	IC (PRE SCALER)		
IC3			SN74LS90N	IC (DECADE COUNTERS)		
IC4		+	M54927P	IC (FREQ SYNTHESIZER PLL)		
IC5			M54460L	IC (PRE SCALER)		
IC6			SN16913P	IC (DOUBLE BALANCED MIXERS)		
IC7			SN74LS90N	IC (DECADE COUNTERS)		
IC8			M74LS93F	IC		
IC9 -11			SN16913P	IC (DOUBLE BALANCED MIXERS)		
IC12			SN76514N	IC		
IC13			MB87006	IC (FREQ SYNTHESIZER PLL)		
IC14		+	M54927P	IC (FREQ SYNTHESIZER PLL)		
IC15			PST520D	IC (LOW POWER RESET)		
IC16			IC4069URP	IC (INVERTER X6)		

FOR SERVICE MANUALS
CONTACT:

MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

E: Scandinavia & Europe K: USA

P: Canada

U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

A : TS-140S (K,M,T,W)

B : TS-680S (K)

▲ Indicates safety critical components

PARTS LIST

※ New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
IC17 IC18 IC19 IC20 IC21		+	NE555C BU18400A SN74LS138N TC5518CPL-20 27C12B-25JAJ2	IC (TIMER) IC (CPU) IC (DECODERS) RAM IC ROM IC (MBM)		
IC22-24 IC25 IC26 IC27 01-02		+	TMP8255AP-5 TC4069URP L792K37 MB4052 2SC2668(Y)	IC (PROGRAMMABLE INTERFACE) IC (INVERTER X6) IC (COUNTER) IC (4CH. 8BIT A/D CONVERTER (ADC)) TRANSISTOR		
03 04 05-06 07-08 09			2SC2458(Y) 2SC1959(Y) 2SC2668(Y) 2SC2458(Y) 2SC2787(L)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
010-011 016-017 022-024 025 026			2SC2668(Y) 2SC2459(BL) 2SC2668(Y) DTA124ES DTL124ES	TRANSISTOR TRANSISTOR TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR		
027-029 030-040 041-043			DTA143ES DTL144WS DTL143TS	DIGITAL TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR		
DISPLAY UNIT (X54-3050-XX) -00 : TS-140S(K, M, T), TS-680S -61 : TS-140S(W)						
D18 D19 D20-021			R30-0855-05 R30-0857-05 R30-0856-05	LED (RED) LED (YLW) LED (GRN)	GN. AIR M. GFR E. L. R. F. TIME Z	
01-02 03 04 05 06			CK73FF1E104Z CK73FB1H103K CK73FF1E104Z C91-0119-05 CK73FF1E104Z	CHIP C CHIP C CHIP C ELECTR CHIP C	0.10UF / 0.010UF / 0.10UF / 0.047UF / 0.10UF /	
07-08 09 010 011 012			CK73FB1H103K CF04EW1H420M CF04EW1H100M CF04EW1H420M CK73FF1H423Z	CHIP C ELECTR ELECTR ELECTR CHIP C	0.010UF / 22UF 16WV 10UF 50WV 47UF 50WV 0.047UF /	
013 014-015 016 021 022			C90-2009-05 CK73FF1E104Z CK73FB1H103K C91-0105-05 CF04EW1H420M	ELECTR CHIP C CHIP C ELECTR ELECTR	470UF 16WV 0.10UF / 0.010UF / 0.0047UF / 47UF 16WV	
01-02			C05-0315-05	TRIMMING CAP (60PF)		
0N1 0N2-03 0N4 0N5 J1	1H	+	E40-3237-05 E40-5131-05 E40-5133-05 E40-3252-05 E06-0858-05	PIN CONNECTOR (2P) PIN CONNECTOR (16P) PIN CONNECTOR (18P) PIN CONNECTOR CYLINDRICAL RECEPTACLE (OP. MCL)		
A1			E10-1344-04	SHIELDING PLATE		
		+	G13-0862-04	FINISH		
		+	J19-1427-03	HOLDER		

E: Scandinavia & Europe K: USA

P: Canada

A : TS-140S (K, M, T, W)

U: PX (Far East, Hawaii)

T: England

M: Other Areas

B : TS-680S (K)

UE: AAFES (Europe)

X: Australia

⚠ indicates safety critical components.

PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
L1 -3 L4 L5			L40-1011-13 L40-2292-14 L40-2792-14	SMALL FIXED INDUCTOR SMALL FIXED INDUCTOR SMALL FIXED INDUCTOR	W W	
CP1 CP2 CP3 R2 R5			R90-0462-05 R90-0274-05 R90-0462-05 RD41FB2B222J RD41FB2B562J	MULTI-COMP 47KX8 J 1/4W MULTI-COMP 47KX5 J 1/6W MULTI-COMP 47KX8 J 1/4W CYLND CHIP R 2.2K J 1/8W CYLND CHIP R 5.6K J 1/8W		
R6 R7 R8 R9 R10			RD41FB2B152J RD41FB2B102J RD41FB2B101J RD41FB2B152J RD41FB2B102J	CYLND CHIP R 1.5K J 1/8W CYLND CHIP R 1.0K J 1/8W CYLND CHIP R 100 J 1/8W CYLND CHIP R 1.5K J 1/8W CYLND CHIP R 1.0K J 1/8W		
R11 R12 R13 -15 R16 VR1			RD41FB2B101J RD41FB2B471J RD41FB2B560J RD41FB2B471J R13-1402-05	CYLND CHIP R 100 J 1/8W CYLND CHIP R 470 J 1/8W CYLND CHIP R 56 J 1/8W CYLND CHIP R 470 J 1/8W SLIDE TYPE PNT(1K,1K)POWER		
VR2 -3 VR4 VR5			R13-3405-05 R13-1402-05 R12-3129-05	SLIDE TYPE PNT(10K)MIC,RF GAIN SLIDE TYPE PNT(1K,1K)NR (TRIMMING POT. (22K)		
S1 -6 S7 S8 -9 S10 -20 S21			S40-2440-15 S31-2409-05 S40-2440-15 S50-1412-05 S40-2441-15	PUSH SWITCH SLIDE SWITCH (LW) PUSH SWITCH TACT SWITCH PUSH SWITCH (1MHZ)		
S22 -24 S25			S50-1412-05 S40-2441-15	TACT SWITCH PUSH SWITCH (RIT)		
D1 -16 D17 D1 D1			FLP12TM7 RLS73 RLZJB. 2A UPD6300F DTA114EK	FLUORESCENT INDICATOR TUBE CHIP DIODE CHIP ZENER DIODE IC(FL. LATCH DRIVER) DIGITAL TRANSISTOR		
S26 Z1			WD2-0388-05 WD2 0804-05	ENDUSER ASSY ELECTRIC UNIT		
SIGNAL UNIT (X57-3190-00) : TS-680S (X57-3200-XX) -10 : TS-140S(K, M, T) -61 : TS-140S(W)						
C2 C3 C4 C5 C6 -7			CK73EF1E4747 CK41FY1E152M CK73FB1H722K CK41FY1E152M CK73FE1E4747	CHIP C 0.47UF Z CYLND CHIP C 1500PF M CHIP C 2200PF K CYLND CHIP C 1500PF M CHIP C 0.47UF Z		
C9 C10 -11 C13 C14 C16			CE04EW1H010M CK41FB1H471K CK41FY1E152M CK73FB1H122K CE04EW1H010M	ELECTRN 1.0UF 50WV CYLND CHIP C 470PF K CYLND CHIP C 1500PF M CHIP C 1200PF K ELECTRN 1.0UF 50WV		
C17 C23 C24 C25 C27			CE41FCH1H150J CE41FSL1H820J CE41FCH1H220J CE41FSL1H121J CE41FSL1H390J	CYLND CHIP C 15PF J CYLND CHIP C 82PF J CYLND CHIP C 22PF J CYLND CHIP C 120PF J CYLND CHIP C 39PF J		
C28 -29 C31			CK41FW1H681M CE04EW1H010M	CYLND CHIP C 680PF M ELECTRN 1.0UF 50WV		

FOR SERVICE MANUALS

CONTACT:

MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

E: Scandinavia & Europe K: USA

P: Canada

U: PX(Far East, Hawaii) T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

A : TS-140S (K,M,T,W)

B : TS-680S (K)

⚠ Indicates safety critical components

PARTS LIST

※ New Parts

Parts without Parts No. are not supplied

Les articles non mentionnés dans le Parts No. ne sont pas fournis

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
C32			CK41FW1H681M	CYLND CHIP C 680PF M		
C33			CK41FB1H471K	CYLND CHIP C 470PF K		
C35			CE04EW1H010M	ELECTRN 1.0UF 50WV		
C36, 37			CK73EF1E474Z	CHIP C 0.47UF Z		
C38			CK73EF1E474Z	CHIP C 0.47UF Z		B
C39			CK73EF1E474Z	CHIP C 0.47UF Z		
C47			CK41FB1H271K	CYLND CHIP C 270PF K		
C48			CK41FB1H471K	CYLND CHIP C 470PF K		
C51			CE04EW1H010M	ELECTRN 1.0UF 50WV		
C52			CK41FSL1H151J	CYLND CHIP C 150PF J		
C53			CK41FA1H181K	CYLND CHIP C 180PF K		
C55			CE04EW1H010M	ELECTRN 1.0UF 50WV		
C56			CK41FY1E222M	CYLND CHIP C 2200PF M		
C57			CK41FSL1H330J	CYLND CHIP C 33PF J		
C58			CK41FY1E222M	CYLND CHIP C 2200PF M		B
C60			CK41FSL1H560J	CYLND CHIP C 56PF J		B
C62			CE04EW1H010M	ELECTRN 1.0UF 50WV		B
C64			CK41FCH1H120J	CYLND CHIP C 12PF J		B
C67			CK41FSL1H270J	CYLND CHIP C 27PF J		B
C70			CK45SL1H151J	CERAMIC 150PF J		
C71			CK41FA1H181K	CYLND CHIP C 180PF K		
C72			CK45SL1H151J	CERAMIC 150PF J		
C74			CE04EW1H010M	ELECTRN 1.0UF 50WV		
C76			CK41FCH1H050C	CYLND CHIP C 5.0PF C		
C77			CE04EW1E470M	ELECTRN 47UF 25WV		
C78			CK41FCH1H220J	CYLND CHIP C 22PF J		
C79			CK73FCH1H330J	CHIP C 33PF J		
C81			CK41FCH1H050C	CYLND CHIP C 5.0PF C		
C83			CE04EW1E470M	ELECTRN 47UF 25WV		
C84			CK41FCH1H100D	CYLND CHIP C 10PF D		
C85			CK41FCH1H220J	CYLND CHIP C 22PF J		
C88, 89			CK41FCH1H050C	CYLND CHIP C 5.0PF C		
C90			CK41FCH1H180J	CYLND CHIP C 18PF J		
C91			CE04EW1E470M	ELECTRN 47UF 25WV		
C94			C91 0119-05	CERAMIC 0.047UF K		
C95			CK41FCH1H220J	CYLND CHIP C 22PF J		B
C96			CE04EW1E470M	ELECTRN 47UF 25WV		B
C98			CK41FCH1H150J	CYLND CHIP C 15PF J		D
C101			CK73FB1E223K	CHIP C 0.022UF K		
C103			CK41FCH1H180J	CYLND CHIP C 18PF J		
C104			CK41FCH1H220J	CYLND CHIP C 22PF J		
C107			CK41FSL1H330J	CYLND CHIP C 33PF J		
C112			CK41FSL1H820J	CYLND CHIP C 82PF J		
C113			CK41FCH1H150J	CYLND CHIP C 15PF J		B
C116, 117			CK73FB1H472K	CHIP C 4700PF K		B
C121			CK41FCH1H060D	CYLND CHIP C 6.0PF D		
C122			CK41FCH1H020C	CYLND CHIP C 2.0PF C		
C123			CK41FCH1H040C	CYLND CHIP C 4.0PF C		
C128, 129			CK73FB1H472K	CHIP C 4700PF K		
C132			CK73FB1E223K	CHIP C 0.022UF K		
C145, 146			CK41FCH1H100D	CYLND CHIP C 10PF D		
C164, 165			CE04EW1HR22M	ELECTRN 0.22UF 50WV		
C166			CE04EW1E470M	ELECTRN 47UF 25WV		
C171			CK41FCH1H150J	CYLND CHIP C 15PF J		
C173			CE04EW1HR47M	ELECTRN 0.47UF 50WV		

E: Scandinavia & Europe K: USA

P: Canada

A : TS-140S (K,M,T,W)

B : TS-680S (K)

U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

⚠ indicates safety critical components.

PARTS LIST

✱ New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis


Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
C174 C176 C177 C187, 188 C190			CE04EW1H010M CE04EW1HR47M CC41FSL1H101J CE04EW1H010M CC41FSL1H101J	ELECTR0 1.0UF 50WV ELECTR0 0.47UF 50WV CYLND CHIP C 100PF J ELECTR0 1.0UF 50WV CYLND CHIP C 100PF J		
C194 C198 C201 C202 C203			CE04EW1H2R2M CC41FCH1H120J C90-2022-05 CC41FSL1H101J CE04EW1H100M	ELECTR0 2.2UF 50WV CYLND CHIP C 12PF J 05 22UF 16WV CYLND CHIP C 100PF J ELECTR0 10UF 50WV		
C204, 205 C206, 207 C209 C210 C211			CC41FSL1H470J CK41FB1H221K CE04EW1H100M CE04EW1H010M CK73FB1E473M	CYLND CHIP C 47PF J CYLND CHIP C 220PF k ELECTR0 10UF 50WV ELECTR0 1.0UF 50WV CHIP C 0.047UF M		A
C212 C213 C214 C215 C216, 217			CK73FF1E473Z CE04EW1E470M CE04EW1HOR1M CE04EW1H100M CK73FB1H472K	CHIP C 0.047UF Z ELECTR0 47UF 25WV ELECTR0 0.1UF 50WV ELECTR0 10UF 50WV CHIP C 4700PF k		
C218 C219 C220 C221 C224			CE04EW1H100M C90-0866-05 CE04EW1C102M CK73FB1E223K CE04EW1A221M	ELECTR0 10UF 50WV ELECTR0 470UF 6.3WV ELECTR0 1000UF 16WV CHIP C 0.022UF k ELECTR0 220UF 10WV		
C226 C227 C229 C230 C232			CK41FY1E222M CK41FB1H471K CK41FY1E152M CK73FB1E223K CE04EW1E220M	CYLND CHIP L 2200PF M CYLND CHIP 470PF k CYLND CHIP L 1500PF M CHIP C 0.022UF k ELECTR0 22UF 25WV		
C233 C234 C235 C236 C237			CK73FB1H562F CK73FB1E223K CC41FSL1H470J CE04EW1E220M CE04EW1HR47M	CHIP C 5600PF k CHIP C 0.022UF k CYLND CHIP L 47PF J ELECTR0 22UF 25WV ELECTR0 0.47UF 50WV		
C238 C239 C240 C241, 242 C243			CE04EW1E330M CE04EW1H100M CE04EW1H010M CE04EW1E470M CE04EW1H010M	ELECTR0 33UF 25WV ELECTR0 10UF 50WV ELECTR0 1.0UF 50WV ELECTR0 47UF 25WV ELECTR0 1.0UF 50WV		
C244 C245 C247, 248 C249 C252			CE04EW1H100M CK73FB1H123K CE04EW1E470M CE04EW1HR47M CK45F2H222P	ELECTR0 10UF 50WV CHIP C 0.012UF k ELECTR0 47UF 25WV ELECTR0 4.7UF 50WV CERAM1. 2200PF F		
C254 C258, 259 C261, 264 C266 C268			CE04EW1E330M CK73FB1H472K CK73FB1H472K CK73FB1H472K CC41FSL1H680J	ELECTR0 33UF 25WV CHIP C 4700PF k CHIP C 4700PF k CHIP C 4700PF k CYLND CHIP L 68PF J		
C271 C273 C278 C279 C280			CK73FB1E223K CK73FB1E223K CC41FSL1H330J CC41FSL1H820J CC41FSL1H270J	CHIP C 0.022UF k CHIP C 0.022UF k CYLND CHIP C 33PF J CYLND CHIP C 82PF J CYLND CHIP C 27PF J		B B B

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351894
FAX: 01844 - 352554

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia

A : TS-140S (K,M,T,W)
B : TS-680S (K)

 indicates safety critical components.

PARTS LIST

✱ New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
C281			CC41FSL1H121J	CYLND CHIP C 120PF J		B
C282			CC41FSL1H470J	CYLND CHIP C 47PF J		B
C287			CC41FSL1H470J	CYLND CHIP C 47PF J		
C288			CC41FSL1H270J	CYLND CHIP C 27PF J		
C289			CC41FSL1H121J	CYLND CHIP C 120PF J		
C290			CC41FSL1H330J	CYLND CHIP C 33PF J		
C291			CC41FSL1H390J	CYLND CHIP C 39PF J		
C294			CK73FB1E223k	CHIP C 0.022UF ✱		
C295			CE04EW1H100M	ELECTRN 10UF 50WV		
C297			CK73FB1H472k	CHIP C 4700PF k		
C301			CC41FSL1H470J	CYLND CHIP C 47PF J		
C308			CE04EW1H4R7M	ELECTRN 4.7UF 50WV		
C309			CE04EW1H010M	ELECTRN 1.0UF 50WV		
C312			CE04EW1H100M	ELECTRN 10UF 50WV		
C314			CE04EW1H4R7M	ELECTRN 0.47UF 50WV		
C315			CE04EW1E470M	ELECTRN 47UF 25WV		
C316			CE04EW1H4R7M	ELECTRN 4.7UF 50WV		
C318			CE04EW1H4R7M	ELECTRN 0.47UF 50WV		
C319, 320			CE04EW1H100M	ELECTRN 10UF 50WV		
C322			CE04EW1H4R7M	ELECTRN 0.47UF 50WV		
C326			CE04EW1E102M	ELECTRN 1000UF 16WV		
C327			CE04EW1E470M	ELECTRN 47UF 25WV		
C330			CE04EW1E470M	ELECTRN 47UF 25WV		
C334			CC41FSL1H470J	CYLND CHIP C 47PF J		B
C336			CE04EW1H4R7M	ELECTRN 4.7UF 50WV		
C338			CK73FB1E223k	CHIP C 0.022UF k		
C340			CK41FY1B6B2M	CYLND CHIP C 6800PF M		
C354			CE04EW1H4R7M	ELECTRN 4.7UF 50WV		
C356			CC41FSL1H470J	CYLND CHIP C 47PF J		B
C357			CE04EW1H010M	ELECTRN 100UF 10WV		
C358			CE04EW1H010M	ELECTRN 1.0UF 50WV		
C359			CK73FE1E473Z	CHIP C 0.047UF Z		
C362			CC41FSL1H101J	CYLND CHIP C 100PF J		
C363			CC41FSL1H180J	CYLND CHIP C 18PF J		
C365			CC41FSL1H040C	CYLND CHIP C 4.0PF C		
C367			CC41FSL1H470J	CYLND CHIP C 47PF J		
C368			CC41FSL1H151J	CYLND CHIP C 150PF J		B
C369			CK73FE1E105Z	CHIP C 1.0UF Z		
C370			CC41FSL1H040C	CYLND CHIP C 4.0PF C		
C372			C91-0119-05	CERAMIC 0.047UF k		
C373			CE04EW1E101M	ELECTRN 100UF 25WV		
C374			C91-0117-05	CERAMIC 0.01UF k		
C376			CK73FB1E473M	CHIP C 0.047UF M		
C501			CE04EW1H100M	ELECTRN 10UF 50WV		A
C502			CE04EW1E470M	ELECTRN 47UF 25WV		A
C505			CK73FE1E473Z	CHIP C 0.047UF Z		A
CN1			E40-5131-05	EPIC CONNECTOR (16P)		
CN3			E40-5141-05	EPIC CONNECTOR (26P)		
CN4			E40-3238-05	PIN CONNECTOR (3P)		
CN5			E40-3242-05	PIN CONNECTOR (7P)		
CN6			E31-3320-05	CONNECTING WIRE (VGV)		
CN7			E40-3237-05	PIN CONNECTOR (2P)		
CN8			E40-3239-05	PIN CONNECTOR (4P)		
CN9			E40-3241-05	PIN CONNECTOR (6P)		

E: Scandinavia & Europe K: USA

P: Canada

A : TS-140S (K,M,T,W)

B : TS-680S (K)

U: PX(Far East, Hawaii) T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

⚠ Indicates safety critical components

PARTS LIST

× New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
CN10			E40-3240-05	PIN CONNECTOR (5P)		
CN11			E40-3238-05	PIN CONNECTOR (3P)		
CN12			E40-3237-05	PIN CONNECTOR (2P)		
CN13			E40-3239-05	PIN CONNECTOR (4P)		
CN14			E40-3237-05	PIN CONNECTOR (2P)		
CN15			E40-5067-05	PIN CONNECTOR (10P)		
CN16			E40-3237-05	PIN CONNECTOR (2P)		
CN17			E40-3239-05	PIN CONNECTOR (4P)		
CN18, 19			E40-3237-05	PIN CONNECTOR (2P)		
CN20, 22			E04-0157-05	RF COAXIAL CABLE RECEPTACLE		
CN23			E06-0752-05	CYLINDRICAL RECEPTACLE (REMOTE)		
CN24			E11-0418-05	PHONE JACK (KEY)		
CN25			E11-0414-05	PHONE JACK (EXT. SP)		
CN26		+	E06-0859-05	CYLINDRICAL RECEPTACLE (AFC3)		
CN27			E40-3266-05	PIN CONNECTOR (8P)		
CN28			E06-1351-05	CYLINDRICAL RECEPTACLE (AFC2)		
CN501			E40-3237-05	PIN CONNECTOR (2P)		A
TP1			E23-0512-05	TERMINAL		
TP2, 3			E23-0465-05	TERMINAL		
A1		+	F11-1071-14	SHIELDING CASE		
A2		+	F11-1072-14	SHIELDING CASE		
A3, 4		+	F11-1073-04	SHIELDING CASE		
A5			F10-1344-04	SHIELDING PLATE		
A6		+	F02-0435-04	HEAT SINK		
A9		+	F10-1376-04	SHIELDING PLATE		
			G02-0574-04	FLAT SPRING		
CF1			L72-0356-05	CERAMIC FILTER (SCB)		
CF2			L72-0355-05	CERAMIC FILTER (AM)		
CF3			L72-0315-05	CERAMIC FILTER (FM)		
L1		+	L34-4046-15	COIL		
L2			L40-8291-17	SMALL FIXED INDUCTOR (8.2UH)		
L3			L40-1001-17	SMALL FIXED INDUCTOR (10UH)		
L4, 5			L40-1021-14	SMALL FIXED INDUCTOR (1MH)		
L6			L40-1592-17	SMALL FIXED INDUCTOR (1.5UH)		
L7			L40-2292-17	SMALL FIXED INDUCTOR (2.2UH)		
L8			L40-3391-17	SMALL FIXED INDUCTOR (3.3UH)		
L9			L40-2292-17	SMALL FIXED INDUCTOR (2.2UH)		
L10			L40-5691-17	SMALL FIXED INDUCTOR (5.6UH)		
L11			L40-1021-14	SMALL FIXED INDUCTOR (1MH)		
L12			L40-2282-17	SMALL FIXED INDUCTOR (0.22UH)		
L13			L40-3382-17	SMALL FIXED INDUCTOR (0.33UH)		
L14			L40-2282-17	SMALL FIXED INDUCTOR (0.22UH)		
L15, 16			L40-3991-17	SMALL FIXED INDUCTOR (3.3UH)		
L17			L40-4791-17	SMALL FIXED INDUCTOR (4.7UH)		
L18			L40-1021-14	SMALL FIXED INDUCTOR (1MH)		
L20			L40-1021-14	SMALL FIXED INDUCTOR (1MH)		
L21			L40-2292-17	SMALL FIXED INDUCTOR (2.2UH)		
L22			L40-1592-17	SMALL FIXED INDUCTOR (1.5UH)		
L23			L40-2292-17	SMALL FIXED INDUCTOR (2.2UH)		
L24			L40-1021-14	SMALL FIXED INDUCTOR (1MH)		
L25, 26			L40-2282-17	SMALL FIXED INDUCTOR (0.22UH)		
L27			L40-3982-17	SMALL FIXED INDUCTOR (0.39UH)		
L28			L40-1292-17	SMALL FIXED INDUCTOR (1.2UH)		

FOR SERVICE MANUALS

CONTACT:

MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

TEL: 01844 351694

FAX: 01844 352554

E: Scandinavia & Europe K: USA

P: Canada

U: PX (Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES (Europe)

X: Australia

A : TS-140S (K, M, T, W)

B : TS-680S (K)

⚠ Indicates safety critical components.

PARTS LIST

※ New Parts

Parts without Parts No. are not supplied

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
L29			L40-6882-17	SMALL FIXED INDUCTOR(0.60UH)		
L31			L40-1292-17	SMALL FIXED INDUCTOR(1.20UH)		
L32			L40-1021-14	SMALL FIXED INDUCTOR(1MH)		
L33			L40-4782-17	SMALL FIXED INDUCTOR(0.47UH)		
L34			L40-3982-17	SMALL FIXED INDUCTOR(0.39UH)		
L35			L40-4782-17	SMALL FIXED INDUCTOR(0.47UH)		
L36			L40-1021-14	SMALL FIXED INDUCTOR(1MH)		
L37			L34-4002-05	C01L		B
L38			L40-1001-17	SMALL FIXED INDUCTOR(10UH)		B
L39			L40-4701-17	SMALL FIXED INDUCTOR(47UH)		
L40-41		+	L34-1204-05	C01L (G1)		B
L42			L34-4002-05	C01L		B
L44			L40-1092-17	SMALL FIXED INDUCTOR(10UH)		B
L45			L40-1001-17	SMALL FIXED INDUCTOR(10UH)		B
L46		+	L34-4046-15	C01L		
L47			L34-1162-05	C01L (G1)		B
L48			L19-0344-05	TOROIDAL C01L		
L49			L19-0324-05	TOROIDAL C01L		
L50-51			L40-1011-14	SMALL FIXED INDUCTOR(100UH)		
L52			L34-2267-05	C01L		
L53		+	L34-4042-05	C01L		
L54-55		+	L34-4048-05	C01L		
L56		+	L40-1001-17	SMALL FIXED INDUCTOR(10UH)		
L57		+	L34-4042-05	C01L		
L58			L40-1011-17	SMALL FIXED INDUCTOR(100UH)		
L59-60			L34-0664-05	C01L		
L61			L40-1021-14	SMALL FIXED INDUCTOR(1MH)		
L64			L34-2124-15	C01L		
L65			L34-0945-05	C01L		
L66			L40-6825-04	SMALL FIXED INDUCTOR(6.8mH)		
L67			L40-2501-14	SMALL FIXED INDUCTOR(25UH)		
L68			L34-0198-05	C01L		
L69			L40-1301-14	SMALL FIXED INDUCTOR(13UH)		
L70			L34-0649-05	C01L		
L71			L40-1501-14	SMALL FIXED INDUCTOR(4.7UH)		B
L72			L34-0632-05	C01L		
L73			L40-4291-14	SMALL FIXED INDUCTOR(10UH)		
L74			L34-0666-15	C01L		B
L75			L40-1021-14	SMALL FIXED INDUCTOR(1MH)		
L76			L40-1511-17	SMALL FIXED INDUCTOR(15UH)		
L77			L40-4782-17	SMALL FIXED INDUCTOR(0.47UH)		
L78			L40-1011-14	SMALL FIXED INDUCTOR(100UH)		
L79			L19-0344-05	TOROIDAL C01L		
L80-81			L40-1021-14	SMALL FIXED INDUCTOR(1MH)		
L82			L40-1092-17	SMALL FIXED INDUCTOR(10UH)		
L83			L40-1021-14	SMALL FIXED INDUCTOR(1MH)		
L84			L34-0540-05	C01L		
L85			L34-0063-05	C01L		
L86			L30-05J3-05	C01L		
L87			L40-1021-14	SMALL FIXED INDUCTOR(1MH)		
L88			L40-3391-13	SMALL FIXED INDUCTOR(3.3UH)		
L89			L34-2283-05	C01L		
L90-91		+	L40-4701-17	SMALL FIXED INDUCTOR(47UH)		
L94			L39-0432-05	TOROIDAL C01L		
L95			L34-2282-05	C01L		

E: Scandinavia & Europe K: USA

P: Canada

A : TS-140S (K,M,T,W)

B : TS-680S (K)

U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

⚠ indicates safety critical components

PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
L96		*	L39-0440-05	TOROIDAL COIL		
L97		*	L34-4046-15	COIL		
L98			L40-1011-14	SMALL FIXED INDUCTOR(100UH)		R
L99			L40-3382-17	SMALL FIXED INDUCTOR(0.33UH)		
L100			L40-2282-17	SMALL FIXED INDUCTOR(0.22UH)		
L101			L40-1011-14	SMALL FIXED INDUCTOR(100UH)		B
L102		*	L34-1204-05	COIL (8T)		B
L103-105			L34-1162-05	COIL (6T)		B
L106-107			L40-1011-14	SMALL FIXED INDUCTOR(100UH)		B
L108			L40-1011-14	SMALL FIXED INDUCTOR(100UH)		
L109			L40-2292-17	SMALL FIXED INDUCTOR(2.2UH)		
L110			L40-4701-14	SMALL FIXED INDUCTOR(47UH)		
L111			L19-0328-05	TOROIDAL COIL		
L112			L40-1021-14	SMALL FIXED INDUCTOR(1MH)		
L113			L34-2124-05	COIL		
L114			L40-1011-17	SMALL FIXED INDUCTOR(100UH)		
L117			L40-1011-14	SMALL FIXED INDUCTOR(100UH)		
L118-120			L40-2292-17	SMALL FIXED INDUCTOR(2.2UH)		
L121-122			L40-1011-14	SMALL FIXED INDUCTOR(100UH)		
L124-125			L40-1011-14	SMALL FIXED INDUCTOR(100UH)		
L126			L40-1011-17	SMALL FIXED INDUCTOR(100UH)		
L127-128			L40-2282-17	SMALL FIXED INDUCTOR(0.22UH)		
XF1		*	L71-0275-05	MCF		
-			N09-0641-05	SCREW		
CP1			R90-0455-05	MULTI-CLAMP 4.7xX8		
CP2			R90-0286-05	MULTI-CLAMP 4.7xX4		
R1			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R2			RD41FB2B470J	CYLND CHIP R 47 J 1/8W		
R3			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R4			RD41FB2B680J	CYLND CHIP R 68 J 1/8W		
R5			RD41FB2B221J	CYLND CHIP R 220 J 1/8W		
R7			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R8			RD41FB2B680J	CYLND CHIP R 68 J 1/8W		
R9			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R10-11			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R12			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R13			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R14			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R15			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R16			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R17			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R18			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R19			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R20			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R21			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R22			RD41FB2B221J	CYLND CHIP R 220 J 1/8W		
R23			RD41FB2B330J	CYLND CHIP R 33 J 1/8W		R
R24			RD41FB2B820J	CYLND CHIP R 82 J 1/8W		B
R25			RD41FB2B122J	CYLND CHIP R 1.2K J 1/8W		B
R26			RD41FB2B100J	CYLND CHIP R 10 J 1/8W		B
R27			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		B
R28			RD41FB2B221J	CYLND CHIP R 220 J 1/8W		
R29			RD41FB2B221J	CYLND CHIP R 220 J 1/8W		B
R30			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		R

E: Scandinavia & Europe K: USA

P: Canada

A : TS-140S (K,M,T,W)

B : TS-680S (K)

U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

⚠ Indicates safety critical components.

PARTS LIST

✱ New Parts

Parts without Parts No. are not supplied.


Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
R31			RD41FB2B122J	CYLND CHIP R 1.2k J 1/8W		B
R32			RD41FB2B102J	CYLND CHIP R 1.0k J 1/8W		B
R34			RD41FB2B103J	CYLND CHIP R 10k J 1/8W		
R35			RD41FB2B152J	CYLND CHIP R 1.5k J 1/8W		
R36			RD41FB2B103J	CYLND CHIP R 10k J 1/8W		B
R37			RD41FB2B152J	CYLND CHIP R 1.5k J 1/8W		R
R38			RD41FB2B472J	CYLND CHIP R 4.7k J 1/8W		B
R39 , 40			RD41FB2B472J	CYLND CHIP R 4.7k J 1/8W		
R41			RD41FB2B103J	CYLND CHIP R 10k J 1/8W		
R42			RD41FB2B472J	CYLND CHIP R 4.7k J 1/8W		B
R43			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R44			RD41FB2B223J	CYLND CHIP R 22k J 1/8W		
R45			RD41FB2B103J	CYLND CHIP R 10k J 1/8W		
R46 , 47			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R48			RD41FB2B223J	CYLND CHIP R 22k J 1/8W		
R49			RD41FB2B103J	CYLND CHIP R 10k J 1/8W		
R50 , 51			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R52			RD41FB2B223J	CYLND CHIP R 22k J 1/8W		
R53			RD41FB2B103J	CYLND CHIP R 10k J 1/8W		
R54			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R55			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		B
R56			RD41FB2B223J	CYLND CHIP R 22k J 1/8W		B
R57			RD41FB2B103J	CYLND CHIP R 10k J 1/8W		B
R58			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		B
R59			RD41FB2B102J	CYLND CHIP R 1.0k J 1/8W		
R60			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R61			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R62 , 63			RD41FB2B103J	CYLND CHIP R 10k J 1/8W		
R64			RD41FB2B330J	CYLND CHIP R 33 J 1/8W		
R65			RD41FB2B271J	CYLND CHIP R 270 J 1/8W		
R66			RD41FB2B151J	CYLND CHIP R 150 J 1/8W		
R67			RD41FB2B220J	CYLND CHIP R 22 J 1/8W		
R68			RD41FB2B470J	CYLND CHIP R 47 J 1/8W		
R69			RD41FB2B681J	CYLND CHIP R 680 J 1/8W		
R70			RD41FB2B472J	CYLND CHIP R 4.7k J 1/8W		
R71			RD41FB2B220J	CYLND CHIP R 22 J 1/8W		
R72			RD41FB2B150J	CYLND CHIP R 15 J 1/8W		
R73 , 74			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R76 , 77			RD41FB2B821J	CYLND CHIP R 820 J 1/8W		
R78 80			RD41FB2B102J	CYLND CHIP R 1.0k J 1/8W		
R81			RD41FB2B393J	CYLND CHIP R 39k J 1/8W		
R82			RD41FB2B104J	CYLND CHIP R 100k J 1/8W		
R83			RD41FB2B474J	CYLND CHIP R 470k J 1/8W		
R84			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R85			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R86			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R87 , 88			RD41FB2B151J	CYLND CHIP R 150 J 1/8W		
R89			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R91 , 92			RD41FB2B472J	CYLND CHIP R 4.7k J 1/8W		
R93			RD41FB2B333J	CYLND CHIP R 33k J 1/8W		
R94 , 95			RD41FB2B104J	CYLND CHIP R 100k J 1/8W		
R96			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R97			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R98 100			RD41FB2B103J	CYLND CHIP R 10k J 1/8W		
R101			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia

A : TS-140S (K,M,T,W)
B : TS-680S (K)

 indicates safety critical components

PARTS LIST

× New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
R102			RD41FB2B682J	CYLND CHIP R 6.8K J 1/8W		
R103, 104			RD41FB2B332J	CYLND CHIP R 3.3K J 1/8W		
R105			RD41FB2B472J	CYLND CHIP R 4.7K J 1/8W		
R106			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R107			RD41FB2B221J	CYLND CHIP R 220 J 1/8W		
R108			RD41FB2B562J	CYLND CHIP R 5.6K J 1/8W		
R109			RD41FB2B152J	CYLND CHIP R 1.5K J 1/8W		
R110			RD41FB2B472J	CYLND CHIP R 4.7K J 1/8W		
R111			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R112			RD41FB2B221J	CYLND CHIP R 220 J 1/8W		
R113			RD41FB2B562J	CYLND CHIP R 5.6K J 1/8W		
R114			RD41FB2B472J	CYLND CHIP R 4.7K J 1/8W		
R115			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R116			RD41FB2B221J	CYLND CHIP R 220 J 1/8W		
R117			RD41FB2B562J	CYLND CHIP R 5.6K J 1/8W		
R118			RD41FB2B472J	CYLND CHIP R 4.7K J 1/8W		
R119			RD41FB2B473J	CYLND CHIP R 47K J 1/8W		
R120			RD41FB2B221J	CYLND CHIP R 220 J 1/8W		
R121			RD41FB2B562J	CYLND CHIP R 5.6K J 1/8W		
R122			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R123, 124			RD41FB2B562J	CYLND CHIP R 5.6K J 1/8W		
R125			RD41FB2B682J	CYLND CHIP R 6.8K J 1/8W		
R126			RD41FB2B104J	CYLND CHIP R 100K J 1/8W		
R127			RD41FB2B333J	CYLND CHIP R 33K J 1/8W		
R128			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R129			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R130			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R131			RD41FB2B333J	CYLND CHIP R 33K J 1/8W		
R132			RD41FB2B104J	CYLND CHIP R 100K J 1/8W		
R133			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R134, 135			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R136, 137			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R138			RD41FB2B224J	CYLND CHIP R 220K J 1/8W		
R139			RD41FB2B472J	CYLND CHIP R 4.7K J 1/8W		
R140			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R141			RD41FB2B332J	CYLND CHIP R 3.3K J 1/8W		
R142			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R143			RD41FB2B102J	CYLND CHIP R 1.0K J 1/8W		
R145, 146			RD41FB2B472J	CYLND CHIP R 4.7K J 1/8W		
R147			RD41FB2B102J	CYLND CHIP R 1.0K J 1/8W		
R148			RD41FB2B222J	CYLND CHIP R 2.2K J 1/8W		
R149			RD41FB2B682J	CYLND CHIP R 6.8K J 1/8W		
R151			RD41FB2B221J	CYLND CHIP R 220 J 1/8W		
R152			RD41FB2B102J	CYLND CHIP R 1.0K J 1/8W		
R153			RD41FB2B222J	CYLND CHIP R 2.2K J 1/8W		
R154			RD41FB2B153J	CYLND CHIP R 15K J 1/8W		
R155			RD41FB2B333J	CYLND CHIP R 33K J 1/8W		
R156			RD41FB2B683J	CYLND CHIP R 68K J 1/8W		
R157			RD41FB2B223J	CYLND CHIP R 22K J 1/8W		
R158, 159			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R160			RD41FB2B102J	CYLND CHIP R 1.0K J 1/8W		
R161			RD41FB2B221J	CYLND CHIP R 220 J 1/8W		
R162			RD41FB2B103J	CYLND CHIP R 10K J 1/8W		
R163			RD41FB2B563J	CYLND CHIP R 56K J 1/8W		
R164			RD41FB2B102J	CYLND CHIP R 1.0K J 1/8W		

E: Scandinavia & Europe K: USA

P: Canada

A : TS-140S (K,M,T,W)

B : TS-680S (K)

U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

▲ Indicates safety critical components.

PARTS LIST

MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

※ New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
R165			RD41FB2B681J	CYLND CHIP R 680 J 1/8W		
R166			RD41FB2B333J	CYLND CHIP R 33k J 1/8W		
R167			RD41FB2B152J	CYLND CHIP R 1.5k J 1/8W		
R168			RD41FB2B333J	CYLND CHIP R 33k J 1/8W		
R169, 170			RD41FB2B474J	CYLND CHIP R 470k J 1/8W		
R171			RD41FB2B273J	CYLND CHIP R 27k J 1/8W		
R172			RD41FB2B153J	CYLND CHIP R 15k J 1/8W		
R173			RD41FB2B334J	CYLND CHIP R 330k J 1/8W		
R174			RD41FB2B333J	CYLND CHIP R 33k J 1/8W		
R175			RD41FB2B152J	CYLND CHIP R 1.5k J 1/8W		
R176			RD41FB2B562J	CYLND CHIP R 5.6k J 1/8W		
R177			RD41FB2B682J	CYLND CHIP R 6.8k J 1/8W		
R178			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R179			RD41FB2B103J	CYLND CHIP R 10k J 1/8W		
R180			RD41FB2B472J	CYLND CHIP R 4.7k J 1/8W		
R181			RD41FB2B273J	CYLND CHIP R 27k J 1/8W		
R182			RD41FB2B274J	CYLND CHIP R 270k J 1/8W		
R183			RD41FB2B103J	CYLND CHIP R 10k J 1/8W		
R184			RD41FB2B472J	CYLND CHIP R 4.7k J 1/8W		
R185			RD41FB2B682J	CYLND CHIP R 6.8k J 1/8W		
R186			RD41FB2B473J	CYLND CHIP R 4.7k J 1/8W		
R187			RD41FB2B274J	CYLND CHIP R 270k J 1/8W		
R188			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R189			RD41FB2B272J	CYLND CHIP R 2.7k J 1/8W		
R190			RD41FB2B104J	CYLND CHIP R 100k J 1/8W		
R191			RD41FB2B472J	CYLND CHIP R 4.7k J 1/8W		
R192, 193			RD41FB2B104J	CYLND CHIP R 100k J 1/8W		
R194			RD41FB2B274J	CYLND CHIP R 270k J 1/8W		
R195			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R196, 197			RD41FB2B472J	CYLND CHIP R 4.7k J 1/8W		
R198			RD41FB2B103J	CYLND CHIP R 10k J 1/8W		
R199			RD41FB2B273J	CYLND CHIP R 27k J 1/8W		
R200			RD41FB2B104J	CYLND CHIP R 100k J 1/8W		
R201			RD41FB2B101J	CYLND CHIP R 100 J 1/8W		
R202			RD41FB2B272J	CYLND CHIP R 2.7k J 1/8W		
R203			RD41FB2B471J	CYLND CHIP R 470 J 1/8W		
R204			RD41FB2B331J	CYLND CHIP R 330 J 1/8W		
R205			RD41FB2B332J	CYLND CHIP R 3.3k J 1/8W		
R206			RD41FB2B102J	CYLND CHIP R 1.0k J 1/8W		
R207			RD41FB2B103J	CYLND CHIP R 10k J 1/8W		
R208			RD41FB2B474J	CYLND CHIP R 4.7k J 1/8W		
R209			RK73FB2A2R2J	CHIP R 2.2k J 1/10W		
R210			RD41FB2B331J	CYLND CHIP R 330 J 1/8W		
R211			RK73FB2A2R2J	CHIP R 2.2k J 1/10W		
R212			RD41FB2B104J	CYLND CHIP R 100k J 1/8W		
R213			RD41FB2B823J	CYLND CHIP R 82k J 1/8W		
R214			RD41FB2B473J	CYLND CHIP R 47k J 1/8W		
R215, 216			RD41FB2B272J	CYLND CHIP R 2.7k J 1/8W		
R217			RD41FB2B102J	CYLND CHIP R 1.0k J 1/8W		
R218			RD41FB2B104J	CYLND CHIP R 100k J 1/8W		
R219			RD41FB2B103J	CYLND CHIP R 10k J 1/8W		
R220			RD41FB2B102J	CYLND CHIP R 1.0k J 1/8W		
R221			RD41FB2B153J	CYLND CHIP R 15k J 1/8W		
R222			RD41FB2B102J	CYLND CHIP R 1.0k J 1/8W		
R223			RD41FB2B821J	CYLND CHIP R 820 J 1/8W		

E: Scand navia & Europe K: USA

P: Canada

A : TS-140S (K,M,T,W)

U: PX(Far East, Hawaii)


T: England

M: Other Areas

B : TS-680S (K)

UE: AAFES(Europe)

X: Australia

 indicates safety critical components

PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
R226, 227 R228 R229, 230 R231 R232			RD41FB2B104J RD41FB2B472J RD41FB2B122J RD41FB2B473J RD41FB2B473J	CYLND CHIP R 100K J 1/BW CYLND CHIP R 4.7K J 1/BW CYLND CHIP R 1.2K J 1/BW CYLND CHIP R 47K J 1/BW CYLND CHIP R 47K J 1/BW		
R233 R234 R235 R236 R237			RD41FB2B101J RD41FB2B333J RD41FB2B104J RD41FB2B471J RD41FB2B101J	CYLND CHIP R 100 J 1/BW CYLND CHIP R 33K J 1/BW CYLND CHIP R 100K J 1/BW CYLND CHIP R 470 J 1/BW CYLND CHIP R 100 J 1/BW		
R238 R239 R240 R241 R242			RD41FB2B473J RD41FB2B473J RD41FB2B103J RD41FB2B102J RD41FB2B101J	CYLND CHIP R 47K J 1/BW CYLND CHIP R 47K J 1/BW CYLND CHIP R 10K J 1/BW CYLND CHIP R 1.0K J 1/BW CYLND CHIP R 100 J 1/BW		
R243, 244 R246-248 R250 R251 R252			RD41FB2B471J RD41FB2B471J RD41FB2B273J RD41FB2B563J RD41FB2B332J	CYLND CHIP R 470 J 1/BW CYLND CHIP R 470 J 1/BW CYLND CHIP R 27K J 1/BW CYLND CHIP R 56K J 1/BW CYLND CHIP R 3.3K J 1/BW		
R253-256 R257 R258 R259, 260 R261			RD41FB2B330J RD41FB2B101J RD41FB2B102J RD41FB2B152J RD41FB2B332J	CYLND CHIP R 33 J 1/BW CYLND CHIP R 100 J 1/BW CYLND CHIP R 1.0K J 1/BW CYLND CHIP R 1.5K J 1/BW CYLND CHIP R 3.3K J 1/BW		B
R262 R263 R264 R265 R266			RD41FB2B561J RD14BB2E100J RD41FB2B681J RD41FB2B223J RD41FB2B124J	CYLND CHIP R 560 J 1/BW RD 10 J 1/4W CYLND CHIP R 680 J 1/BW CYLND CHIP R 22K J 1/BW CYLND CHIP R 120K J 1/BW		
R267 R268 R269 R270 R271			RD41FB2B221J RD41FB2B101J RD41FB2B222J RD41FB2B101J RD41FB2B471J	CYLND CHIP R 220 J 1/BW CYLND CHIP R 100 J 1/BW CYLND CHIP R 2.2K J 1/BW CYLND CHIP R 100 J 1/BW CYLND CHIP R 470 J 1/BW		
R272 R273 R274 R275, 276 R277			RD41FB2B103J RD41FB2B471J RD41FB2B101J RD41FB2B103J RD14CB2C224J	CYLND CHIP R 10K J 1/BW CYLND CHIP R 470 J 1/BW CYLND CHIP R 100 J 1/BW CYLND CHIP R 10K J 1/BW RD 270K J 1/6W		
R278 R279 R280 R281 R282			RD41FB2B104J RD41FB2B103J RD14BB2C4R7J RD41FB2B562J RD41FB2B332J	CYLND CHIP R 100K J 1/BW CYLND CHIP R 10K J 1/BW RD 4.7 J 1/6W CYLND CHIP R 5.6K J 1/BW CYLND CHIP R 3.3K J 1/BW		
R284 R285 R286 R287 R288			RD41FB2B222J RD41FB2B332J RD41FB2B101J RD41FB2B473J RD41FB2B103J	CYLND CHIP R 2.2K J 1/BW CYLND CHIP R 3.3K J 1/BW CYLND CHIP R 100 J 1/BW CYLND CHIP R 47K J 1/BW CYLND CHIP R 10K J 1/BW		B
R289, 290 R291 R292 R293 R294			RD41FB2B103J RD41FB2B472J RD41FB2B562J RD41FB2B223J RD41FB2B103J	CYLND CHIP R 10K J 1/BW CYLND CHIP R 4.7K J 1/BW CYLND CHIP R 5.6K J 1/BW CYLND CHIP R 22K J 1/BW CYLND CHIP R 10K J 1/BW		

E: Scandinavia & Europe

K: USA

P: Canada

A : TS-140S (K,M,T,W)

B : TS-680S (K)

U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

⚠ indicates safety critical components.

PARTS LIST

※ New Parts

Parts without Parts No. are not supplied

Les articles non mentionnés dans le Parts No. ne sont pas fournis

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
R295			RD41FB2H102J	CYLND CHIP R 1.0K J 1/8W		
R296			RD41FB2R222J	CYLND CHIP R 2.2K J 1/8W		
R297			RD41FB2H101J	CYLND CHIP R 100 J 1/8W		
R298			RD41FB2H103J	CYLND CHIP R 10K J 1/8W		
R299			RD41FB2R682J	CYLND CHIP R 6.8K J 1/8W		
R300			RD41FB2R563J	CYLND CHIP R 56K J 1/8W		
R301			RD41FB2R472J	CYLND CHIP R 4.7K J 1/8W		
R302			RD41FB2R333J	CYLND CHIP R 33K J 1/8W		
R303			RD41FB2R124J	CYLND CHIP R 1.2K J 1/8W		
R304			RD41FB2R211J	CYLND CHIP R 220 J 1/8W		
R305			RD41FB2H102J	CYLND CHIP R 1.0K J 1/8W		
R306			RD41FB2R562J	CYLND CHIP R 5.6K J 1/8W		
R307			RD41FB2R123J	CYLND CHIP R 1.2K J 1/8W		
R308			RD41FB2R681J	CYLND CHIP R 6.8K J 1/8W		
R309			RD41FB2R211J	CYLND CHIP R 220 J 1/8W		
R310			RD41FB2R122J	CYLND CHIP R 1.2K J 1/8W		
R311			RD41FB2H104J	CYLND CHIP R 100K J 1/8W		
R312			RD41FB2R332J	CYLND CHIP R 3.3K J 1/8W		
R313			RD41FB2R473J	CYLND CHIP R 4.7K J 1/8W		
R314, 317			RD41FB2R561J	CYLND CHIP R 560K J 1/8W		
R315			RD41FB2H103J	CYLND CHIP R 10K J 1/8W		
R316			RD41FB2H102J	CYLND CHIP R 1.0K J 1/8W		
R317			RD41FB2H104J	CYLND CHIP R 100K J 1/8W		
R318			RD41FB2H103J	CYLND CHIP R 10K J 1/8W		
R319			RD41FB2R473J	CYLND CHIP R 4.7K J 1/8W		
R320			RD41FB2H104J	CYLND CHIP R 100K J 1/8W		
R321			RD41FB2H103J	CYLND CHIP R 10K J 1/8W		
R322			RD41FB2R473J	CYLND CHIP R 4.7K J 1/8W		
R323			RD41FB2H104J	CYLND CHIP R 100K J 1/8W		
R324			RD41FB2H104J	CYLND CHIP R 100K J 1/8W		
R325			RD41FB2H103J	CYLND CHIP R 10K J 1/8W		
R326			RD41FB2H102J	CYLND CHIP R 1.0K J 1/8W		
R327, 330			RD41FB2R123J	CYLND CHIP R 1.2K J 1/8W		
R328			RD41FB2R562J	CYLND CHIP R 5.6K J 1/8W		
R329			RD41FB2R332J	CYLND CHIP R 3.3K J 1/8W		
R330			RD41FB2R473J	CYLND CHIP R 4.7K J 1/8W		
R331			RD41FB2R561J	CYLND CHIP R 560K J 1/8W		
R332			RD41FB2R562J	CYLND CHIP R 5.6K J 1/8W		
R333			RD41FB2H103J	CYLND CHIP R 1.0K J 1/8W		
R334			RD41FB2H102J	CYLND CHIP R 1.0K J 1/8W		
R335			RD41FB2H101J	CYLND CHIP R 100 J 1/8W		
R336			RD41FB2H103J	CYLND CHIP R 1.0K J 1/8W		
R337			RD41FB2H104J	CYLND CHIP R 100K J 1/8W		
R338			RD41FB2R473J	CYLND CHIP R 4.7K J 1/8W		
R339			RD41FB2R472J	CYLND CHIP R 4.7K J 1/8W		
R340			RD41FB2H103J	CYLND CHIP R 1.0K J 1/8W		
R341			RD41FB2H104J	CYLND CHIP R 100K J 1/8W		
R342			RD41FB2R473J	CYLND CHIP R 4.7K J 1/8W		
R343, 347			RD41FB2R332J	CYLND CHIP R 3.3K J 1/8W		
R344, 348			RD41FB2R472J	CYLND CHIP R 4.7K J 1/8W		
R345			RD41FB2H103J	CYLND CHIP R 1.0K J 1/8W		
R346			RD41FB2H104J	CYLND CHIP R 100K J 1/8W		
R347			RD41FB2R473J	CYLND CHIP R 4.7K J 1/8W		
R348			RD41FB2R222J	CYLND CHIP R 2.2K J 1/8W		
R349			RD41FB2H103J	CYLND CHIP R 1.0K J 1/8W		
R350			RD41FB2R472J	CYLND CHIP R 4.7K J 1/8W		
R351			RD41FB2H104J	CYLND CHIP R 100K J 1/8W		
R352			RD41FB2R473J	CYLND CHIP R 4.7K J 1/8W		
R353			RD41FB2H102J	CYLND CHIP R 1.0K J 1/8W		
R354			RD41FB2R472J	CYLND CHIP R 4.7K J 1/8W		

E: Scandinavia & Europe K: USA

P: Canada

A : TS-140S (K,M,T,W)

B : TS-680S (K)


U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

 indicates safety critical components

PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
R367 R368, 369 R370 R371 R372			RD41FB2B105J RD41FB2B104J RD14CB2C103J RD14BB2C100J RD41FB2B332J	CYLND CHIP R 1.0M J 1/8W CYLND CHIP R 100k J 1/8W RD 10k J 1/6W RD 10 J 1/6W CYLND CHIP R 3.3k J 1/8W		
R373 R501, 504 R505 VR1 VR2			RD41FB2B101J RD41FB2B103J RD41FB2B102J R12-0435-05 R12-1431-05	CYLND CHIP R 100 J 1/8W CYLND CHIP R 10k J 1/8W CYLND CHIP R 1.0k J 1/8W TRIMMING PNT. (300) TRIMMING PNT. (1k)		A A
VR3, 4 VR5, 6 VR7 VR8 VR9, 10		*	R12-2414-05 R12-3447-05 R05-5401-05 R12-1432-05 R12-7407-05	TRIMMING PNT. (5k) TRIMMING PNT. (10k) POTENTIOMETER (100k) TRIMMING PNT. (2k) TRIMMING PNT. (500k)		
VR11 VR12 VR13 VR14 VR15			R12-7407-05 R12-7407-05 R12-5418-05 R12-5417-05 R12-5417-05	TRIMMING PNT. (500k) TRIMMING PNT. (500k) TRIMMING PNT. (200k) TRIMMING PNT. (100k) TRIMMING PNT. (100k)		B B
VR16, 17 VR18 VR19 VR20, 21 VR22			R12-4414-05 R12-0435-05 R12-1431-05 R12-4414-05 R12-3448-05	TRIMMING PNT. (50k) TRIMMING PNT. (300) TRIMMING PNT. (1k) TRIMMING PNT. (50k) TRIMMING PNT. (20k)		
VR23 VR24 VR25 VR26 VR501		*	R12-4414-05 R12-3447-05 R12-1431-05 R12-3447-05 R05-3443-05	TRIMMING PNT. (50k) TRIMMING PNT. (10k) TRIMMING PNT. (1k) TRIMMING PNT. (10k) POTENTIOMETER (10k)		A
VR502 W1 W8 W9 W10		*	R05-0402-05 R92-0150-05 R92-1061-05 R92-0150-05 R92-0687-05	POTENTIOMETER (300) JUMPER RES 0 OHM JUMPER RES 0 OHM JUMPER RES 0 OHM CHIP R 0 OHM		A A B
W11 W12 W13, 14 W501, 502 W503			R92-0687-05 R92-1061-05 R92-1061-05 R92-1061-05 R92-0687-05	CHIP R 0 OHM JUMPER RES 0 OHM JUMPER RES 0 OHM JUMPER RES 0 OHM CHIP R 0 OHM		A A A
W504, 505 W506			R92-0338-05 R92-0687-05	CYLND CHIP R 0 OHM CHIP R 0 OHM		A A
K1 K2, 3 K4 S1 S2		*	S51-1436-05 S51-2422-05 S51-1432-05 S31-1411-05 S31-1411-05	RELAY (ATT) RELAY RELAY SLIDE SWITCH SLIDE SWITCH		B B
D1 D5 D6 D7, 8 D9		*	DAN235(*) US1090 V08(G) RLS135 V08(G)	CHIP DIODE DIODE DIODE CHIP DIODE DIODE		B
D10 D11			US1090 RLS135	DIODE CHIP DIODE		

FOR SERVICE MANUALS
CONTACT:

MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

E: Scandinavia & Europe K: USA

P: Canada

U: PX(Far East, Hawaii) T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

A : TS-140S (K,M,T,W)

B : TS-680S (K)

⚠ indicates safety critical components

PARTS LIST

※ New Parts

Parts without Parts No. are not supplied

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
D12		*	DAN235(K)	CHIP DIODE		
D13 -20			RLS135	CHIP DIODE		B
D21 -22			RLS135	CHIP DIODE		
D23			1S1555	DIODE		B
D24			DAN202(K)	CHIP DIODE		B
D25			1S1555	DIODE		B
D26			DAN202(K)	CHIP DIODE		
D27			RLS73	CHIP DIODE		
D28 -29			DAN202(K)	CHIP DIODE		
D30			UZ3.0B	ZENER DIODE		
D31			DAN202(K)	CHIP DIODE		B
D33			RLS73	CHIP DIODE		
D34 -37			TTT310H	VARI-CAP DIODE		
D40			RLS135	CHIP DIODE		
D39 -41			TTT310H	VARI-CAP DIODE		
D41			RLS135	CHIP DIODE		
D42 -43			TTT310H	VARI-CAP DIODE		B
D44			RLS135	CHIP DIODE		B
D45 -46			RLS135	CHIP DIODE		
D47			ML204	DIODE		
D48			DAN202(K)	CHIP DIODE		
D49			RLS73	CHIP DIODE		
D50 -53			RLS135	CHIP DIODE		
D54 -56			RLS73	CHIP DIODE		
D57			DAN202(K)	CHIP DIODE		
D58 -60			RLS73	CHIP DIODE		
D61			DAN202(K)	CHIP DIODE		
D62 -67			RLS73	CHIP DIODE		
D68 -72			DAN202(K)	CHIP DIODE		
D70			RLS73	CHIP DIODE		
D71			TPM18A	CHIP DIODE		
D72 -74			RLS73	CHIP DIODE		
D75			1N6065PA	DIODE		
D76			RLS73	CHIP DIODE		
D77			DAN202(K)	CHIP DIODE		
D78			RLS73	CHIP DIODE		
D79 -81			DAN202(K)	CHIP DIODE		
D82			15M88AC	CHIP DIODE		
D83			RLS73	CHIP DIODE		
D85			DAN202(K)	CHIP DIODE		
D86 -87			15M88AC	CHIP DIODE		
D88			RLS73	CHIP DIODE		
D89			DAN202(K)	CHIP DIODE		
D90			1S1555	DIODE		
D91			ML204	ZENER DIODE		
D92			RLS73	CHIP DIODE		
D93			UZ3.0B	ZENER DIODE		
D94			RLS73	CHIP DIODE		
D96			ML204	DIODE		
D97			DAN202(K)	CHIP DIODE		
D98			1N6065PA	DIODE		
D99 -102			RLS135	CHIP DIODE		B
D103-106			RLS135	CHIP DIODE		
D107			DAN202(K)	CHIP DIODE		
D108			RLS73	CHIP DIODE		

E: Scandinavia & Europe K: USA

P: Canada

A : TS-140S (K,M,T,W)

B : TS-680S (K)

U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

⚠ indicates safety critical components.

PARTS LIST

* New Parts

Parts without Parts No. are not supplied

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
D109, 110 D111 D112-115 D116 D117		+	RLS135 KB369 RLS73 RLZ3.6B RLS73	CHIP DIODE VARI-CAP DIODE CHIP DIODE CHIP ZENER DIODE CHIP DIODE		
D118 D119 D120 D122 D123			RLS135 DAN202(K) RLS73 RLS135 RLS73	CHIP DIODE CHIP DIODE CHIP DIODE CHIP DIODE CHIP DIODE		
D124 D125 D126 D127 D128		+	RLS135 RLZ3.6B RLS135 1SS133 RLS73	CHIP DIODE CHIP ZENER DIODE CHIP DIODE DIODE CHIP DIODE		B
D129 D130, 502 D133 D134 D135		+	RLS73 RLS73 U23.0B MS4581P M74LS145P	CHIP DIODE DIODE CHIP ZENER DIODE IC IC (DECIMAL DECODER/DRIVER RED)		B A A
D136 D137 D138 D139 D140 D141 D142 D143 D144 D145 D146 D147			ANG12 UPC2002V SN16913P MC3357P TC4066BP	IC (BALANCE MODULATOR) IC (OP AMP X2) IC (DOUBLE BALANCED MIXER) IC (LOW POWER FM IF) IC (ANALOG/ DIGITAL SW)		
D148 D149 D150 D151 D152 D153 D154 D155 D156 D157 D158 D159 D160 D161 D162 D163 D164 D165 D166 D167 D168 D169 D170 D171 D172 D173 D174 D175 D176 D177 D178 D179 D180 D181 D182 D183 D184 D185 D186 D187 D188 D189 D190 D191 D192 D193 D194 D195 D196 D197 D198 D199 D200 D201 D202 D203 D204 D205 D206 D207 D208 D209 D210 D211 D212 D213 D214 D215 D216 D217 D218 D219 D220 D221 D222 D223 D224 D225 D226 D227 D228 D229 D230 D231 D232 D233 D234 D235 D236 D237 D238 D239 D240 D241 D242 D243 D244 D245 D246 D247 D248 D249 D250 D251 D252 D253 D254 D255 D256 D257 D258 D259 D260 D261 D262 D263 D264 D265 D266 D267 D268 D269 D270 D271 D272 D273 D274 D275 D276 D277 D278 D279 D280 D281 D282 D283 D284 D285 D286 D287 D288 D289 D290 D291 D292 D293 D294 D295 D296 D297 D298 D299 D300 D301 D302 D303 D304 D305 D306 D307 D308 D309 D310 D311 D312 D313 D314 D315 D316 D317 D318 D319 D320 D321 D322 D323 D324 D325 D326 D327 D328 D329 D330 D331 D332 D333 D334 D335 D336 D337 D338 D339 D340 D341 D342 D343 D344 D345 D346 D347 D348 D349 D350 D351 D352 D353 D354 D355 D356 D357 D358 D359 D360 D361 D362 D363 D364 D365 D366 D367 D368 D369 D370 D371 D372 D373 D374 D375 D376 D377 D378 D379 D380 D381 D382 D383 D384 D385 D386 D387 D388 D389 D390 D391 D392 D393 D394 D395 D396 D397 D398 D399 D400 D401 D402 D403 D404 D405 D406 D407 D408 D409 D410 D411 D412 D413 D414 D415 D416 D417 D418 D419 D420 D421 D422 D423 D424 D425 D426 D427 D428 D429 D430 D431 D432 D433 D434 D435 D436 D437 D438 D439 D440 D441 D442 D443 D444 D445 D446 D447 D448 D449 D450 D451 D452 D453 D454 D455 D456 D457 D458 D459 D460 D461 D462 D463 D464 D465 D466 D467 D468 D469 D470 D471 D472 D473 D474 D475 D476 D477 D478 D479 D480 D481 D482 D483 D484 D485 D486 D487 D488 D489 D490 D491 D492 D493 D494 D495 D496 D497 D498 D499 D500 D501 D502 D503 D504 D505 D506 D507 D508 D509 D510 D511 D512 D513 D514 D515 D516 D517 D518 D519 D520 D521 D522 D523 D524 D525 D526 D527 D528 D529 D530 D531 D532 D533 D534 D535 D536 D537 D538 D539 D540 D541 D542 D543 D544 D545 D546 D547 D548 D549 D550 D551 D552 D553 D554 D555 D556 D557 D558 D559 D560 D561 D562 D563 D564 D565 D566 D567 D568 D569 D570 D571 D572 D573 D574 D575 D576 D577 D578 D579 D580 D581 D582 D583 D584 D585 D586 D587 D588 D589 D590 D591 D592 D593 D594 D595 D596 D597 D598 D599 D600 D601 D602 D603 D604 D605 D606 D607 D608 D609 D610 D611 D612 D613 D614 D615 D616 D617 D618 D619 D620 D621 D622 D623 D624 D625 D626 D627 D628 D629 D630 D631 D632 D633 D634 D635 D636 D637 D638 D639 D640 D641 D642 D643 D644 D645 D646 D647 D648 D649 D650 D651 D652 D653 D654 D655 D656 D657 D658 D659 D660 D661 D662 D663 D664 D665 D666 D667 D668 D669 D670 D671 D672 D673 D674 D675 D676 D677 D678 D679 D680 D681 D682 D683 D684 D685 D686 D687 D688 D689 D690 D691 D692 D693 D694 D695 D696 D697 D698 D699 D700 D701 D702 D703 D704 D705 D706 D707 D708 D709 D710 D711 D712 D713 D714 D715 D716 D717 D718 D719 D720 D721 D722 D723 D724 D725 D726 D727 D728 D729 D730 D731 D732 D733 D734 D735 D736 D737 D738 D739 D740 D741 D742 D743 D744 D745 D746 D747 D748 D749 D750 D751 D752 D753 D754 D755 D756 D757 D758 D759 D760 D761 D762 D763 D764 D765 D766 D767 D768 D769 D770 D771 D772 D773 D774 D775 D776 D777 D778 D779 D780 D781 D782 D783 D784 D785 D786 D787 D788 D789 D790 D791 D792 D793 D794 D795 D796 D797 D798 D799 D800 D801 D802 D803 D804 D805 D806 D807 D808 D809 D810 D811 D812 D813 D814 D815 D816 D817 D818 D819 D820 D821 D822 D823 D824 D825 D826 D827 D828 D829 D830 D831 D832 D833 D834 D835 D836 D837 D838 D839 D840 D841 D842 D843 D844 D845 D846 D847 D848 D849 D850 D851 D852 D853 D854 D855 D856 D857 D858 D859 D860 D861 D862 D863 D864 D865 D866 D867 D868 D869 D870 D871 D872 D873 D874 D875 D876 D877 D878 D879 D880 D881 D882 D883 D884 D885 D886 D887 D888 D889 D890 D891 D892 D893 D894 D895 D896 D897 D898 D899 D900 D901 D902 D903 D904 D905 D906 D907 D908 D909 D910 D911 D912 D913 D914 D915 D916 D917 D918 D919 D920 D921 D922 D923 D924 D925 D926 D927 D928 D929 D930 D931 D932 D933 D934 D935 D936 D937 D938 D939 D940 D941 D942 D943 D944 D945 D946 D947 D948 D949 D950 D951 D952 D953 D954 D955 D956 D957 D958 D959 D960 D961 D962 D963 D964 D965 D966 D967 D968 D969 D970 D971 D972 D973 D974 D975 D976 D977 D978 D979 D980 D981 D982 D983 D984 D985 D986 D987 D988 D989 D990 D991 D992 D993 D994 D995 D996 D997 D998 D999 D1000 D1001 D1002 D1003 D1004 D1005 D1006 D1007 D1008 D1009 D1010 D1011 D1012 D1013 D1014 D1015 D1016 D1017 D1018 D1019 D1020 D1021 D1022 D1023 D1024 D1025 D1026 D1027 D1028 D1029 D1030 D1031 D1032 D1033 D1034 D1035 D1036 D1037 D1038 D1039 D1040 D1041 D1042 D1043 D1044 D1045 D1046 D1047 D1048 D1049 D1050 D1051 D1052 D1053 D1054 D1055 D1056 D1057 D1058 D1059 D1060 D1061 D1062 D1063 D1064 D1065 D1066 D1067 D1068 D1069 D1070 D1071 D1072 D1073 D1074 D1075 D1076 D1077 D1078 D1079 D1080 D1081 D1082 D1083 D1084 D1085 D1086 D1087 D1088 D1089 D1090 D1091 D1092 D1093 D1094 D1095 D1096 D1097 D1098 D1099 D1100 D1101 D1102 D1103 D1104 D1105 D1106 D1107 D1108 D1109 D1110 D1111 D1112 D1113 D1114 D1115 D1116 D1117 D1118 D1119 D1120 D1121 D1122 D1123 D1124 D1125 D1126 D1127 D1128 D1129 D1130 D1131 D1132 D1133 D1134 D1135 D1136 D1137 D1138 D1139 D1140 D1141 D1142 D1143 D1144 D1145 D1146 D1147 D1148 D1149 D1150 D1151 D1152 D1153 D1154 D1155 D1156 D1157 D1158 D1159 D1160 D1161 D1162 D1163 D1164 D1165 D1166 D1167 D1168 D1169 D1170 D1171 D1172 D1173 D1174 D1175 D1176 D1177 D1178 D1179 D1180 D1181 D1182 D1183 D1184 D1185 D1186 D1187 D1188 D1189 D1190 D1191 D1192 D1193 D1194 D1195 D1196 D1197 D1198 D1199 D1200 D1201 D1202 D1203 D1204 D1205 D1206 D1207 D1208 D1209 D1210 D1211 D1212 D1213 D1214 D1215 D1216 D1217 D1218 D1219 D1220 D1221 D1222 D1223 D1224 D1225 D1226 D1227 D1228 D1229 D1230 D1231 D1232 D1233 D1234 D1235 D1236 D1237 D1238 D1239 D1240 D1241 D1242 D1243 D1244 D1245 D1246 D1247 D1248 D1249 D1250 D1251 D1252 D1253 D1254 D1255 D1256 D1257 D1258 D1259 D1260 D1261 D1262 D1263 D1264 D1265 D1266 D1267 D1268 D1269 D1270 D1271 D1272 D1273 D1274 D1275 D1276 D1277 D1278 D1279 D1280 D1281 D1282 D1283 D1284 D1285 D1286 D1287 D1288 D1289 D1290 D1291 D1292 D1293 D1294 D1295 D1296 D1297 D1298 D1299 D1300 D1301 D1302 D1303 D1304 D1305 D1306 D1307 D1308 D1309 D1310 D1311 D1312 D1313 D1314 D1315 D1316 D1317 D1318 D1319 D1320 D1321 D1322 D1323 D1324 D1325 D1326 D1327 D1328 D1329 D1330 D1331 D1332 D1333 D1334 D1335 D1336 D1337 D1338 D1339 D1340 D1341 D1342 D1343 D1344 D1345 D1346 D1347 D1348 D1349 D1350 D1351 D1352 D1353 D1354 D1355 D1356 D1357 D1358 D1359 D1360 D1361 D1362 D1363 D1364 D1365 D1366 D1367 D1368 D1369 D1370 D1371 D1372 D1373 D1374 D1375 D1376 D1377 D1378 D1379 D1380 D1381 D1382 D1383 D1384 D1385 D1386 D1387 D1388 D1389 D1390 D1391 D1392 D1393 D1394 D1395 D1396 D1397 D1398 D1399 D1400 D1401 D1402 D1403 D1404 D1405 D1406 D1407 D1408 D1409 D1410 D1411 D1412 D1413 D1414 D1415 D1416 D1417 D1418 D1419 D1420 D1421 D1422 D1423 D1424 D1425 D1426 D1427 D1428 D1429 D1430 D1431 D1432 D1433 D1434 D1435 D1436 D1437 D1438 D1439 D1440 D1441 D1442 D1443 D1444 D1445 D1446 D1447 D1448 D1449 D1450 D1451 D1452 D1453 D1454 D1455 D1456 D1457 D1458 D1459 D1460 D1461 D1462 D1463 D1464 D1465 D1466 D1467 D1468 D1469 D1470 D1471 D1472 D1473 D1474 D1475 D1476 D1477 D1478 D1479 D1480 D1481 D1482 D1483 D1484 D1485 D1486 D1487 D1488 D1489 D1490 D1491 D1492 D1493 D1494 D1495 D1496 D1497 D1498 D1499 D1500 D1501 D1502 D1503 D1504 D1505 D1506 D1507 D1508 D1509 D1510 D1511 D1512 D1513 D1514 D1515 D1516 D1517 D1518 D1519 D1520 D1521 D1522 D1523 D1524 D1525 D1526 D1527 D1528 D1529 D1530 D1531 D1532 D1533 D1534 D1535 D1536 D1537 D1538 D1539 D1540 D1541 D1542 D1543 D1544 D1545 D1546 D1547 D1548 D1549 D1550 D1551 D1552 D1553 D1554 D1555 D1556 D1557 D1558 D1559 D1560 D1561 D1562 D1563 D1564 D1565 D1566 D1567 D1568 D1569 D1570 D1571 D1572 D1573 D1574 D1575 D1576 D1577 D1578 D1579 D1580 D1581 D1582 D1583 D1584 D1585 D1586 D1587 D1588 D1589 D1590 D1591 D1592 D1593 D1594 D1595 D1596 D1597 D1598 D1599 D1600 D1601 D1602 D1603 D1604 D1605 D1606 D1607 D1608 D1609 D1610 D1611 D1612 D1613 D1614 D1615 D1616 D1617 D1618 D1619 D1620 D1621 D1622 D1623 D1624 D1625 D1626 D1627 D1628 D1629 D1630 D1631 D1632 D1633 D1634 D1635 D1636 D1637 D1638 D1639 D1640 D1641 D1642 D1643 D1644 D1645 D1646 D1647 D1648 D1649 D1650 D1651 D1652 D1653 D1654 D1655 D1656 D1657 D1658 D1659 D1660 D1661 D1662 D1663 D1664 D1665 D1666 D1667 D1668 D1669 D1670 D1671 D1672 D1673 D1674 D1675 D1676 D1677 D1678 D1679 D1680 D1681 D1682 D1683 D1684 D1685 D1686 D1687 D1688 D1689 D1690 D1691 D1692 D1693 D1694 D1695 D1696 D1697 D1698 D1699 D1700 D1701 D1702 D1703 D1704 D1705 D1706 D1707 D1708 D1709 D1710 D1711 D1712 D1713 D1714 D1715 D1716 D1717 D1718 D1719 D1720 D1721 D1722 D1723 D1724 D1725 D1726 D1727 D1728 D1729 D1730 D1731 D1732 D1733 D1734 D1735 D1736 D1737 D1738 D1739 D1740 D1741 D1742 D1743 D1744 D1745 D1746 D1747 D1748 D1749 D1750 D1751 D1752 D1753 D1754 D1755 D1756 D1757 D1758 D1759 D1760 D1761 D1762 D1763 D1764 D1765 D1766 D1767 D1768 D1769 D1770 D1771 D1772 D1773 D1774 D1775 D1776 D1777 D1778 D1779 D1780 D1781 D1782 D1783 D1784 D1785 D1786 D1787 D1788 D1789 D1790 D1791 D1792 D1793 D1794 D1795 D1796 D1797 D1798 D1799 D1800 D1801 D1802 D1803 D1804 D1805 D1806 D1807 D1808 D1809 D1810 D1811 D1812 D1813 D1814 D1815 D1816 D1817 D1818 D1819 D1820 D1821 D1822 D1823 D1824 D1825 D1826 D1827 D1828 D1829 D1830 D1831 D1832 D1833 D1834 D1835 D1836 D1837 D1838 D1839 D1840 D1841 D1842 D1843 D1844 D1845 D1846 D1847 D1848 D1849 D1850 D1851 D1852 D1853 D1854 D1855 D1856 D1857 D1858 D1859 D1860 D1861 D1862 D1863 D1864 D1865 D1866 D1867 D1868 D1869 D1870 D1871 D1872 D1873 D1874 D1875 D1876 D1877 D1878 D1879 D1880 D1881 D1882 D1883 D1884 D1885 D1886 D1887						

PARTS LIST

※ New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
060			2SK192A(Y)	FEET		
061			2SA1162(Y)	CHIP TRANSISTOR		
062			DTU114Tk	DIGITAL TRANSISTOR		
063			DTU114Ek	DIGITAL TRANSISTOR		B
064			DTU114Tk	DIGITAL TRANSISTOR		B
065 ~ 67			DTU114Fk	DIGITAL TRANSISTOR		
068			2SK192A(Y)	FEET		
069			2SA1162(Y)	CHIP TRANSISTOR		
070			2SK125-S	FEET		B
071			2SF1907	TRANSISTOR		B
072			2SK125-S	FEET		B
073			2SF1907	TRANSISTOR		B
074			2SA1162(Y)	CHIP TRANSISTOR		
075			DTU114Ek	DIGITAL TRANSISTOR		
076			DTA143Ek	DIGITAL TRANSISTOR		
077			DTU114Fk	DIGITAL TRANSISTOR		
078			2SK73(GR)	FEET		
079 ~ 80			2SK125-S	FEET		
081			2SF1907	TRANSISTOR		
082			EMC3	DIGITAL TRANSISTOR		
083			DTU114Ek	DIGITAL TRANSISTOR		B
084			DTU114Fk	DIGITAL TRANSISTOR		
085			EMC3	DIGITAL TRANSISTOR		B
086			2SK73(GR)	FEET		
087			2SA1162(Y)	CHIP TRANSISTOR		
088			EMC3	DIGITAL TRANSISTOR		
089			2SA1162(Y)	CHIP TRANSISTOR		
090			2SA1162(Y)	CHIP TRANSISTOR		
091 ~ 92			DTU114Fk	DIGITAL TRANSISTOR		
093			DTU114Tk	DIGITAL TRANSISTOR		
094 ~ 95			DTU114Fk	DIGITAL TRANSISTOR		B
096 ~ 97			2SA1162(Y)	CHIP TRANSISTOR		
098			DTU114Fk	DIGITAL TRANSISTOR		
099			DTU114Fk	DIGITAL TRANSISTOR		
100 ~ 1			EL1502	THEMISTOR		
			X59-1060-00	SIDE TONE UNIT		
			X59-1060-00	ONX UNIT		A
			X59-3000-00	EM.MI UNIT		
			X59-3340-00	TRX UNIT		
			X59-3350-00	APC UNIT		
			X59-3360-00	DELAY TONE UNIT		
SIDE TONE (X59-1060-00)						
11			PK73FB1E223k	CHIP R	0.0223k	k
12 ~ 5			PK73FB1H123k	CHIP R	0.0123k	k
16 ~ 8			PK73FB1E223k	CHIP R	0.0223k	k
			EL3-0471-05	TERMINAL		
R1 ~ 7			RK73FB2A123J	CHIP R	87k	J 1/10W
R3			RK73FB2A223J	CHIP R	22k	J 1/10W
R4			RK73FB2A422J	CHIP R	4.2k	J 1/10W
R5			RK73FB2A102J	CHIP R	1.0k	J 1/10W
R6			RK73FB2A103J	CHIP R	10k	J 1/10W
R7 ~ 8			RK73FB2A333J	CHIP R	33k	J 1/10W
R9			RK73FB2A103J	CHIP R	10k	J 1/10W

E: Scandinavia & Europe K: USA

P: Canada

A : TS-140S (K,M,T,W)

B : TS-680S (K)

U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

⚠ indicates safety critical components

PARTS LIST

× New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
R10 R11 W1 -6			RK73FB2A333J RK73FB2A183J R92-0670-05	CHIP R 33K J 1/10W CHIP R 18K J 1/10W CHIP R 0 OHM		
D1 D2 D3 Q1			DAN202(K) DAP202(K) DAN202(K) 2SC2712(Y)	CHIP DIODE CHIP DIODE CHIP DIODE CHIP TRANSISTOR		
VOX (X59-1080-00)						
C1 C2			CK73FB1H102K CK73FB1E223K C23-0471-05	CHIP C 1000PF K CHIP C 0.022UF K TERMINAL		
R1 R2 -5 R3 -7 R8 R9			RK73FB2A104J RK73FB2A103J RK73FB2A105J RK73FB2A474J RK73FB2A105J	CHIP R 100K J 1/10W CHIP R 10K J 1/10W CHIP R 1.0M J 1/10W CHIP R 470K J 1/10W CHIP R 1.0M J 1/10W		
R10 W1 -3			RK73FB2A103J R92-0670-05	CHIP R 10K J 1/10W CHIP R 0 OHM		
D1 -2 D1 IC2 Q1			DAP202(K) NJM2904M T4001BF 2SC2712(Y)	CHIP DIODE IC (OP AMP X2) IC (NR X6) CHIP TRANSISTOR		
FM MIC AMP. (X59-3000-02)						
C1 C2 C3 C4 C5 - JK1 R1 R2 R3 R4 R5 -7 R8 R9 IC1 Q1			CK73FB1H680J CK73FB1H561K CK73FB1H390J CK73FB1H102K CK73FB1E223K C23-0471-05 R92-0670-05 RK73FB2A105J RK73FB2A823J RK73FB2A562J RK73FB2A472J RK73FB2A221J RK73FB2A182J RK73FB2A104J NJM4558M 2SC2712(Y)	CHIP C 68PF J CHIP C 560PF K CHIP C 39PF J CHIP C 1000PF K CHIP C 0.022UF K TERMINAL CHIP R 0 OHM CHIP R 1.0M J 1/10W CHIP R 82K J 1/10W CHIP R 5.6K J 1/10W CHIP R 4.7K J 1/10W CHIP R 220K J 1/10W CHIP R 1.8K J 1/10W CHIP R 100K J 1/10W IC (OP AMP X2) CHIP TRANSISTOR		
TRX (X59-3340-00)						
C1 -3 - R1 R2 R3 R4 R5 R6 W1 -2			CK73FB1H473K C23-0471-05 RK73FB2A103J RK73FB2A471J RK73FB2A103J RK73FB2A471J RK73FB2A103J RK73FB2A471J R92-0670-05	CHIP C 0.047UF K TERMINAL CHIP R 10K J 1/10W CHIP R 470 J 1/10W CHIP R 10K J 1/10W CHIP R 470 J 1/10W CHIP R 10K J 1/10W CHIP R 470 J 1/10W CHIP R 0 OHM		

E: Scandinavia & Europe K: USA

P: Canada

A : TS-140S (K,M,T,W)

B : TS-680S (K)

U: PX(Far East, Hawaii)

T: England

M: Other Areas

UE: AAFES(Europe)

X: Australia

⚠ indicates safety critical components

PARTS LIST

✱ New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
D1 01 03 04	.2 .2 . .5		DAN202(K) 2SA1204(Y) 2SA1182(Y) DTC114EK	CHIP DIODE CHIP TRANSISTOR CHIP TRANSISTOR DIGITAL TRANSISTOR		
NB2 (X59-3350-00)						
C1 C2 C3			CK73FB1H103K CK73FB1H102K CK73BF1F474Z	CHIP C 0.010UF F CHIP C 1000PF K CHIP C 0.47UF Z		
-			E23-0471-05	TERMINAL		
R1 R2 R3 R4 R5			RK73FB2A103J RK73FB2A563J RK73FB2A684J RK73FB2A103J RK73FB2A184J	CHIP R 10K J 1/10W CHIP R 56K J 1/10W CHIP R 680K J 1/10W CHIP R 10K J 1/10W CHIP R 180K J 1/10W		
W1	.3		R92-0670-05	CHIP R 0 OHM		
U1 U2	.2		TC4011BF DTC114EK	IC (NAND X4) DIGITAL TRANSISTOR		
DELAY TIME (X59-3360-00)						
C1 - R1 W1			CK73FB1H103K E23-0471-05 RK73FB2A103J R92-0670-05	CHIP C 0.010UF F TERMINAL CHIP R 10K J 1/10W CHIP R 0 OHM		
D1 U1 U2 U3 U4	.5		DAN202(K) MB24LS122 DTC114EK DTC114EK DTC114EK	CHIP DIODE IC DIGITAL TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR		
FAN (X59-3370-00)						
C1 - R1 R2 R3 R4 R5 R6 R7 R8 R9 W1			CK73FB1H103K E23-0471-05 RK73FB2A103J RK73FB2A223J RK73FB2A562J RK73FB2A122J RK73FB2A562J RK73FB2A332J RK73FB2A562J RK73FB2A223J RK73FB2A103J R92-0670-05	CHIP C 0.010UF F TERMINAL CHIP R 10K J 1/10W CHIP R 22K J 1/10W CHIP R 56K J 1/10W CHIP R 1.2K J 1/10W CHIP R 5.6K J 1/10W CHIP R 33K J 1/10W CHIP R 56K J 1/10W CHIP R 22K J 1/10W CHIP R 10K J 1/10W CHIP R 0 OHM		
U1 U2	.2		TCM4558M 2SA1204(Y)	IC (OP AMP X2) CHIP TRANSISTOR		

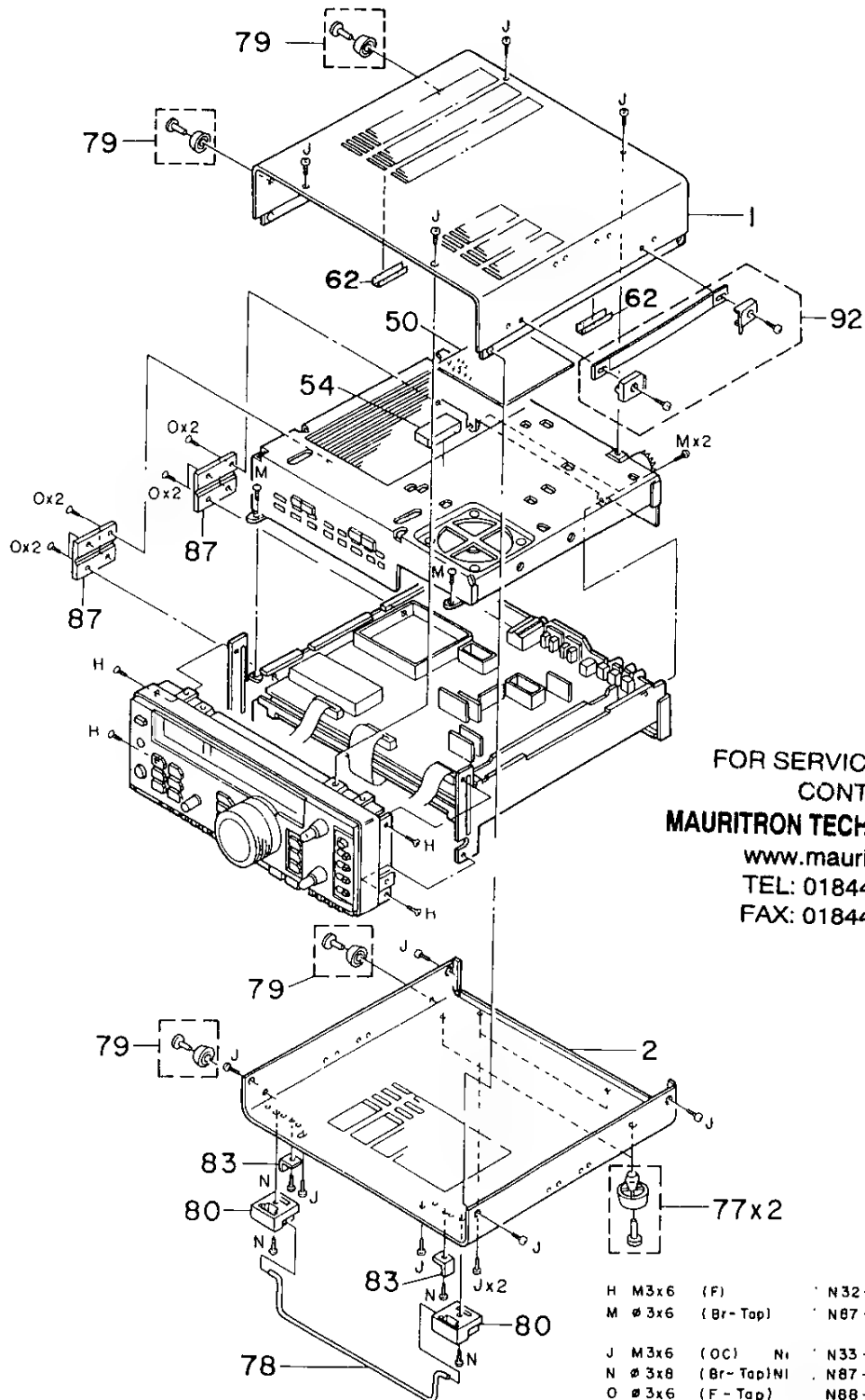
FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia

A : TS-140S (K,M,T,W)
B : TS-680S (K)

⚠ indicates safety critical components

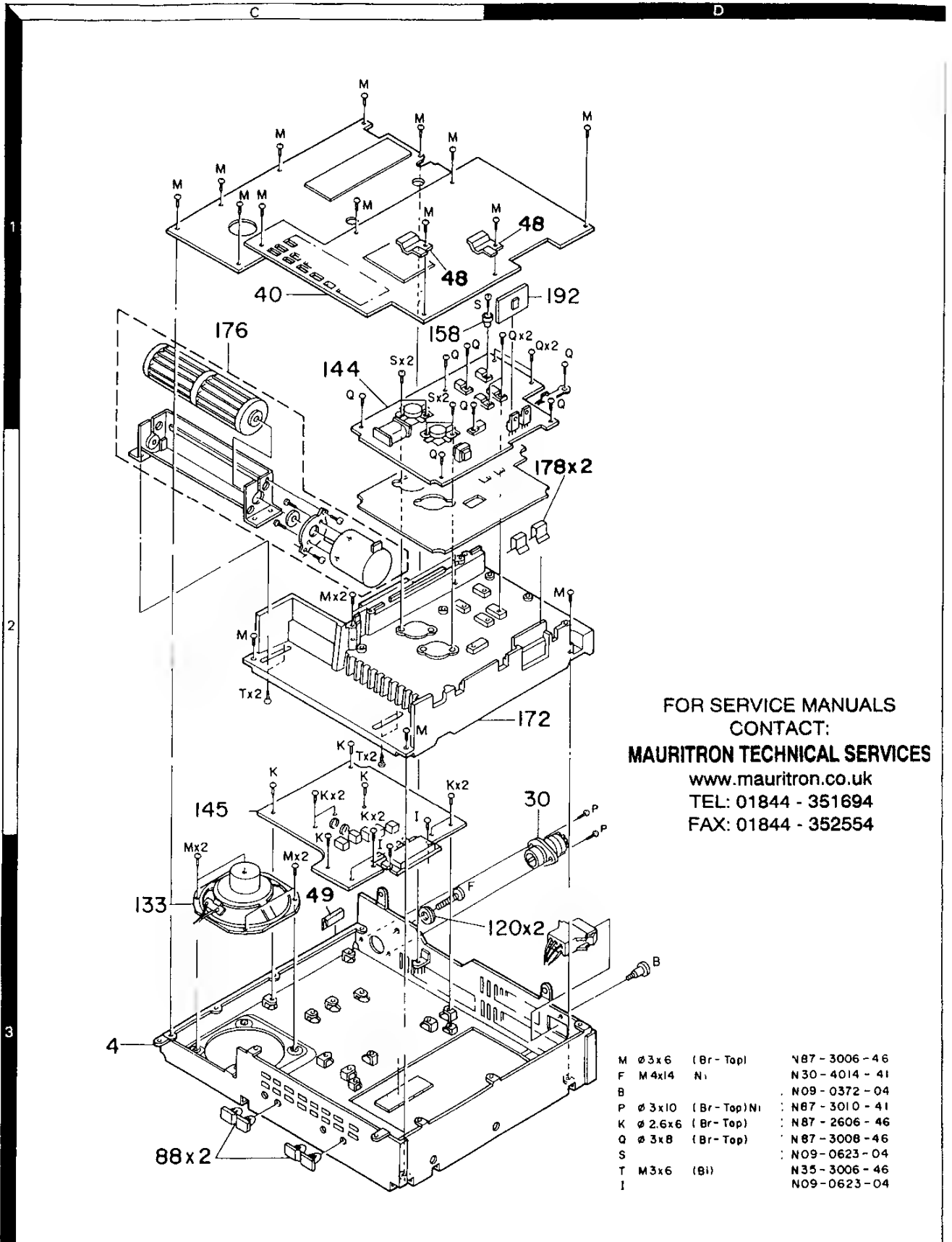
DISASSEMBLY



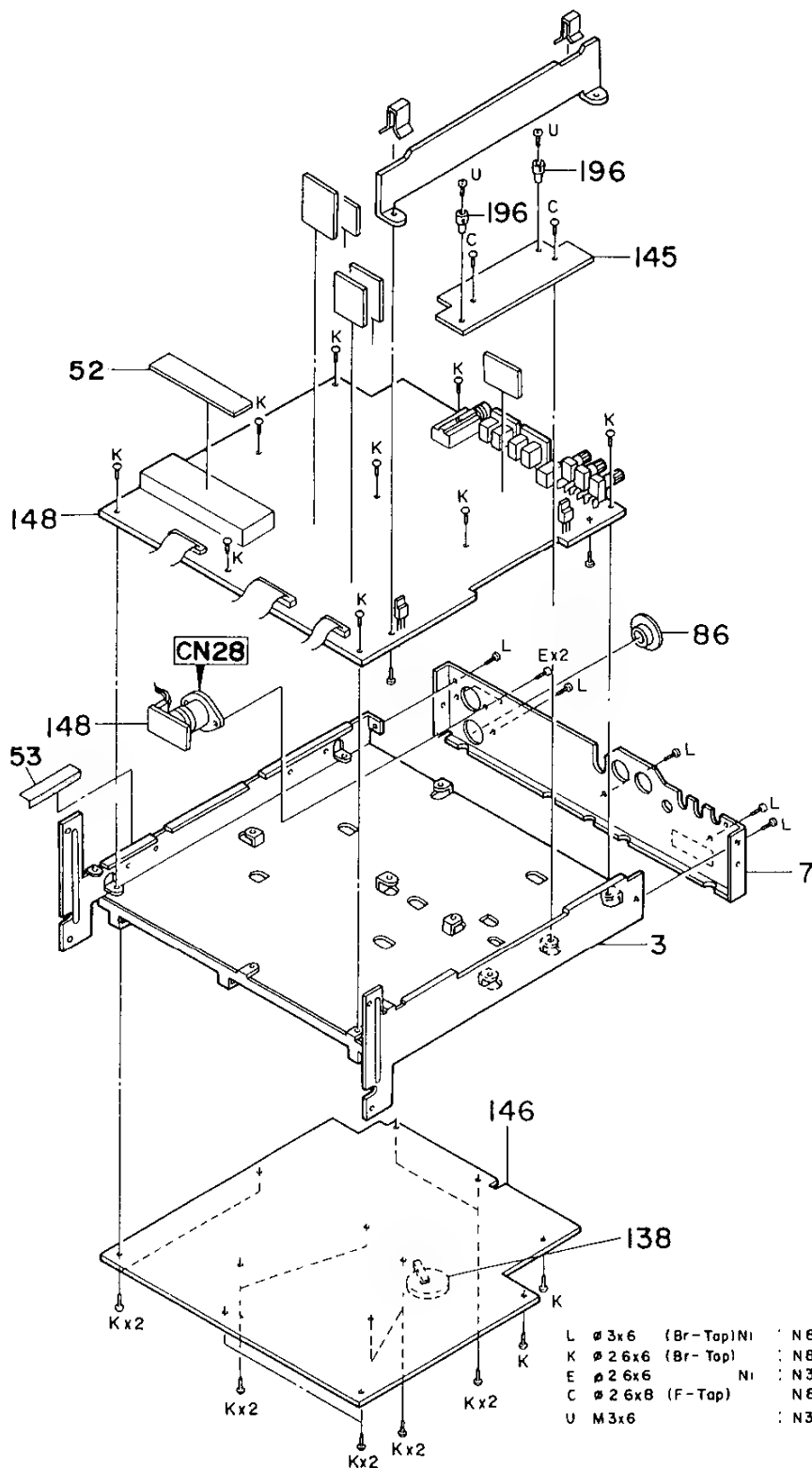
FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

H	M3x6	(F)		N32-3006-46
M	3x6	(Br-Tap)		N87-3006-46
J	M3x6	(OC)	N	N33-3006-41
N	3x8	(Br-Tap)NI		N87-3008-41
O	3x6	(F-Tap)		N88-3006-46

DISASSEMBLY

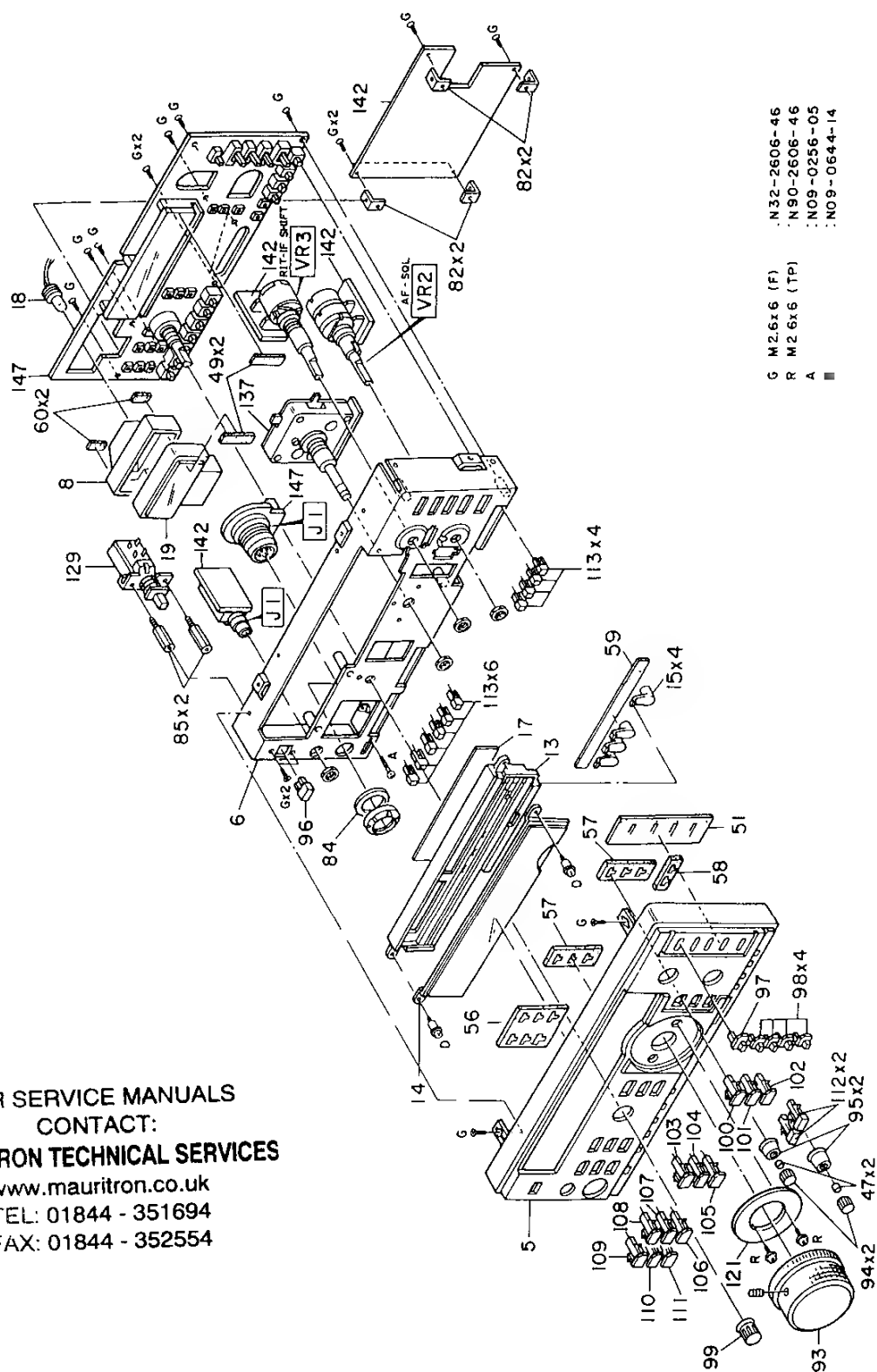


DISASSEMBLY



DISASSEMBLY

**FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES**
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

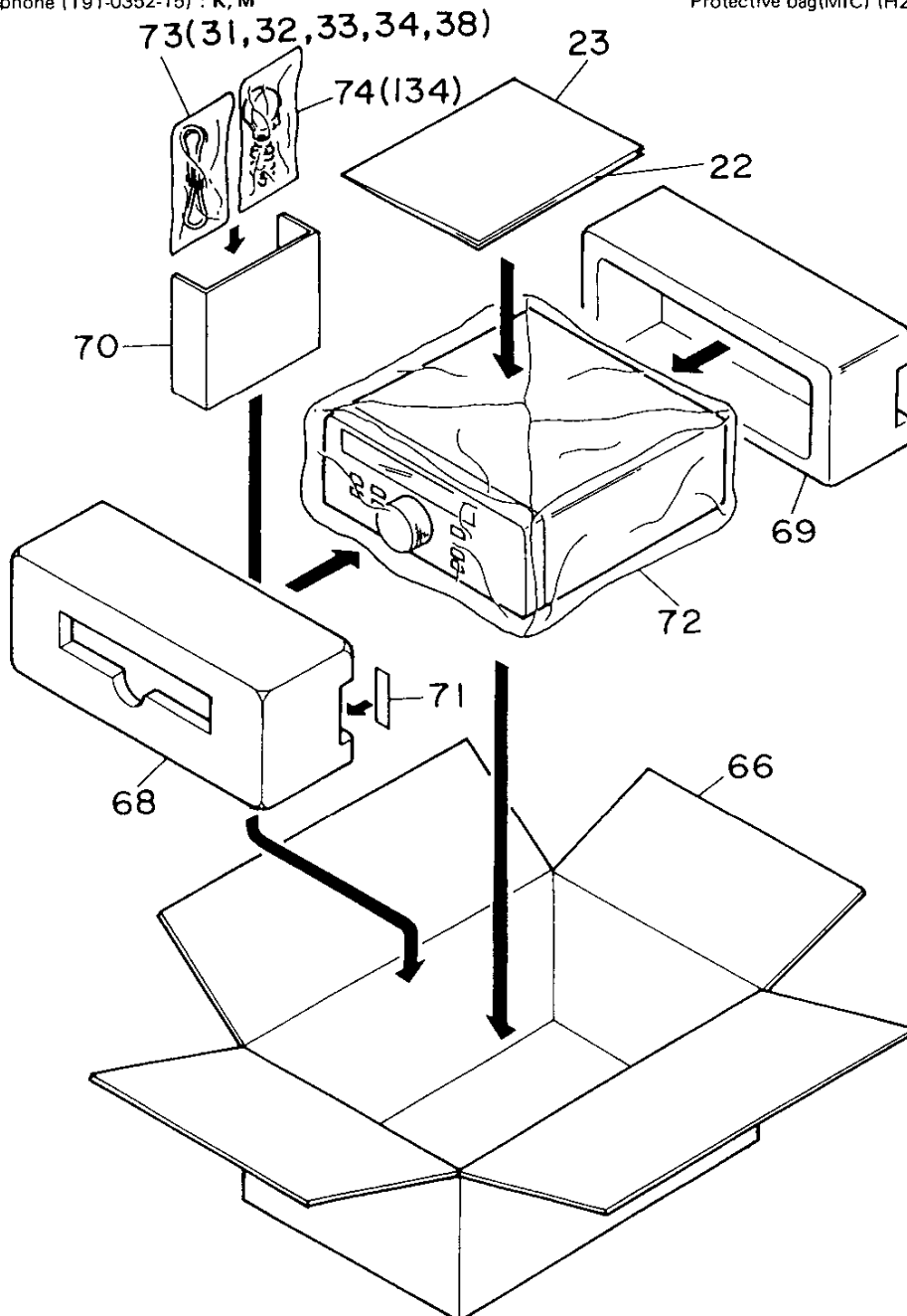


PACKING

Accessory

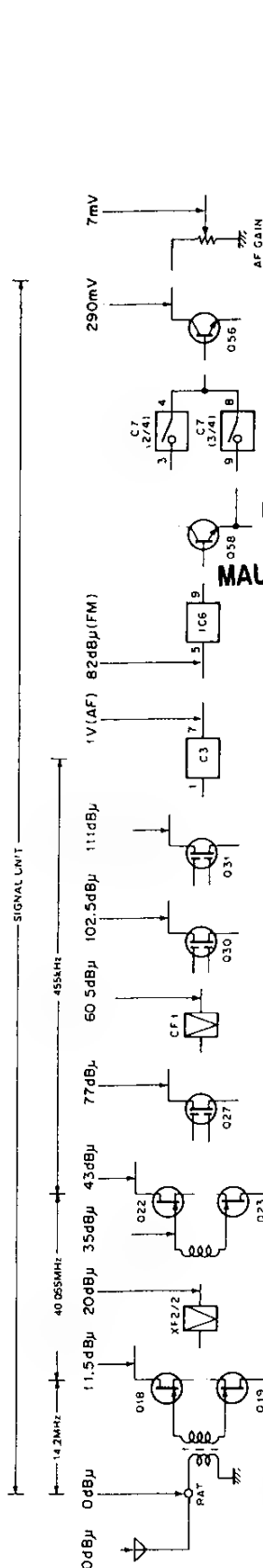
Warranty card (B46-0410-20) : K
 Instruction manual (B50-8199-20)
 7P DIN plug (E07-0751-05)
 DC power cord ass'y (E30-2065-05)
 Connecting wire(CAL) (E31-2154-05)
 13P plug (E07-1351-05)
 Fuse(20A) (F05-2036-05)
 Microphone (T91-0352-15) : K, M

Carton box (H01-8146-04) : **TS-140S**
 Carton box (H01-8165-04) : **TS-680S**
 Packing fixture(FRONT) (H10-2633-02)
 Packing fixture(REAR) (H10-2634-02)
 Cushion (H12-1315-04)
 Cushion(FRONT) (H12-1405-04)
 Protective cover (H20-1410-03)
 Protective bag(DC CORD) (H25-0112-04)
 Protective bag(MIC) (H25-0079-04) : K, M



LEVEL DIAGRAM

RX SECTION



Frequency 14.200MHz

Input 0dBμ

AF output 0.63V/8Ω

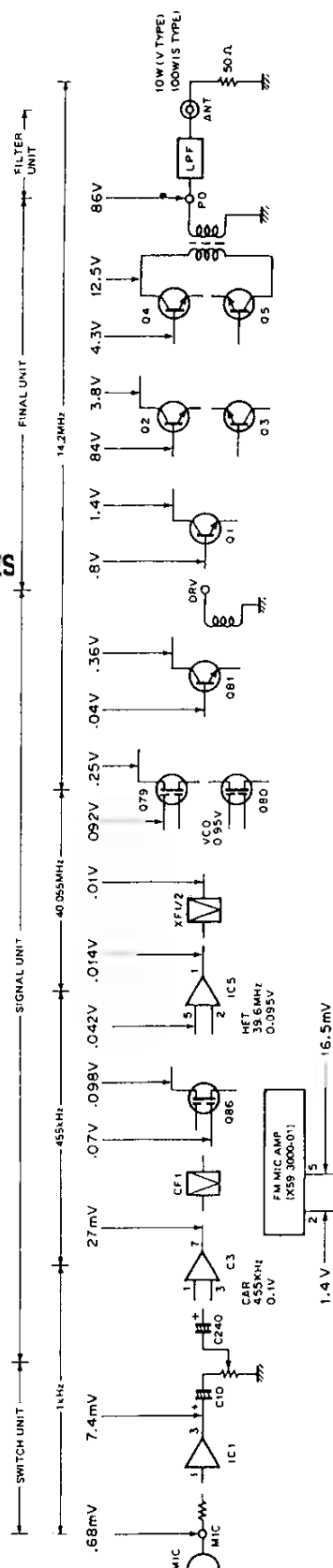
Note1: The SSG signal of 14.200MHz/0dBμ is input from the ANT terminal, and the audio output of 0.63V/8Ω is obtained by adjusting the AF GAIN V.R.

The SSG signal levels at various points necessary to obtain the same audio output at this time with the AF GAIN V.R. at a fixed position are plotted here

Note2: In FM mode, this signal level is used to obtain the same value as the S/N at the time when 0dBμ is input

Note3: The SSG output is measured through a capacitor of 0.01μF

TX SECTION



Frequency 14.200MHz

Note1: The high-frequency part is measured with the RF V.M. in the CW mode

The low-frequency part is measured with the AF V.M. in the USB mode

Note2: The audio input voltage in the USB mode is the input for obtaining 1kHz single tone which reads almost the maximum value in the ALC zone, and that in the FM mode is the input for realizing the standard modulation (±3kHz DFV).

Note3: MIC V.R. is set to the maximum point.

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

ADJUSTMENT

REQUIRED TEST EQUIPMENT

1. DC Voltmeter (DC V.M)
 - 1) Input resistance . More than 1M Ω
 - 2) Voltage range : 1.5 to 1000 V AC/DC

NOTE A high-precision multimeter may be used
However, accurate readings can not be obtained for high-impedance circuits
2. DC Ammeter
 - 1) Current range : 1.5A, 3A, 20A, High-precision ammeter may be used.
3. RF VTVM (RF V.M)
 - 1) Input impedance 1M Ω and less than 3pF, min
 - 2) Voltage range 10mV to 300V
 - 3) Frequency range 10kHz to 100MHz or greater
4. AF Voltmeter (AF V.M)
 - 1) Frequency range 50Hz to 10kHz
 - 2) Input resistance 1M Ω or greater
 - 3) Voltage range 10mV to 30 V
5. AF Generator (AG)
 - 1) Frequency range 200Hz to 5kHz
 - 2) Output 1mV or less to 1 V, low distortion
6. AF Dummy Load
 - 1) Impedance 8 Ω
 - 2) Dissipation 3W or greater
7. Oscilloscope (SCOPE)

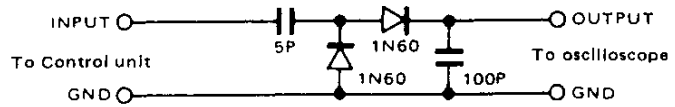
Vertical amplifier which has frequency characteristics higher than 100MHz

Requires high sensitivity, and external synchronization capability
8. Tracking generator
 - 1) Center frequency 50kHz to 90MHz
 - 2) Frequency deviation Maximum ± 35 MHz
 - 3) Output voltage 0.1 V or greater
 - 4) Sweep rate At least 0.5sec/cm
9. Standard Signal Generator (SSG)
 - 1) Frequency range 50kHz to 500MHz
 - 2) Output 20dB/0.1 μ V to 120dB/1V
 - 3) Output impedance 50 Ω
 - 4) AM and FM modulation can be possible

NOTE Generator must be frequency stable
10. Frequency Counter (FREQ.C)
 - 1) Minimum input voltage 50mV
 - 2) Frequency range . 500MHz or greater
 - 3) Output impedance . 50 Ω
11. Noise Generator

Must generate ignition noise containing harmonics beyond 30MHz
12. RF Dummy Load
 - 1) Impedance 150 Ω
 - 2) Dissipation 150W or greater
13. Power Meter
 - 1) Impedance 50 Ω
 - 2) Dissipation 150W continuous or greater
 - 3) Frequency limits 60MHz or greater

14. Spectrum Analyzer (SPE-ANA)
 - 1) Frequency range : 100kHz to 500MHz or greater
 - 2) Bandwidth : 1 kHz to 3MHz
15. Detector
 - 1) For adjustment of PLL/VCO BPF



16. Directional Coupler
17. Power

PS-430, PS-50 (S Type)

PS-21 (V Type)
18. Microphone

MC-60S8 or MC-42S

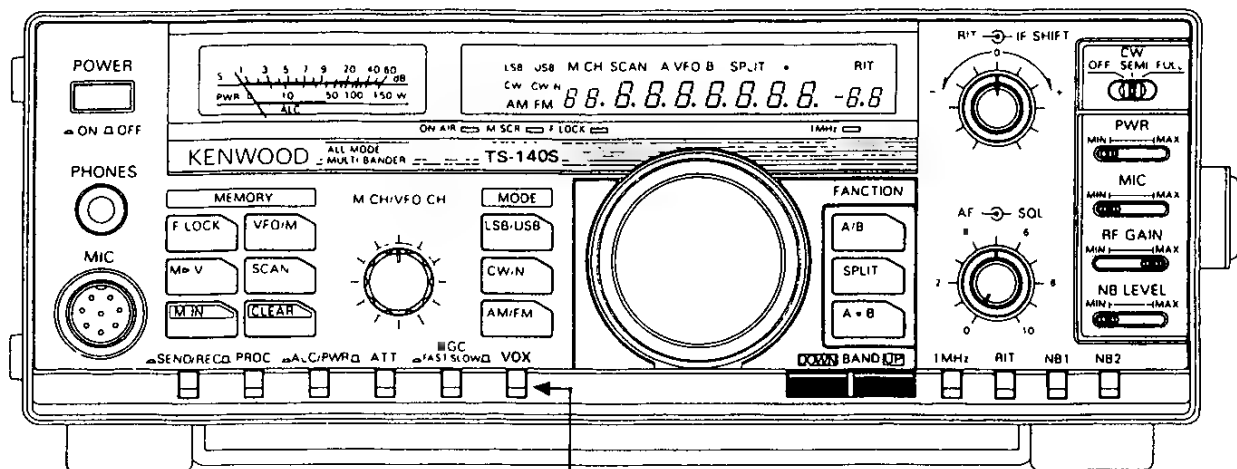
PREPARATION

Unless otherwise specified, set the controls as follows

POWER.....	ON	PROC	OFF
BAND.....	14	ALC/PWR.....	PWR
AF.....	MIN	ATT.....	OFF
SOL.....	MIN	AGC.....	SLOW
IF SHIFT.....	CENTER	VOX (TS-140S).....	OFF
CW.....	OFF	RF AMP (TS 680S).....	OFF
PWR.....	MIN	1MHz.....	OFF
MIC.....	MIN	R.T.....	OFF
RF GAIN.....	MAX	NB1.....	OFF
NB LEVEL.....	MIN	NB2.....	OFF
F LOCK.....	OFF	VFO A/B.....	A
SEND/REC.....	REC	SPLIT.....	OFF

**FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES**
www.mauritron.co.uk
 TEL: 01844 - 351694
 FAX: 01844 - 352554

ADJUSTMENT



TS-680S : RF AMP

RESET

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1 Reset	1) Set the power SW ON, while depressing the A-B key							A VFO 14 000 0 MODE USB

VOLTAGE CHECK

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1 Voltage		DC V.M	Signal	(8)-4			13.8V	13.1 ~ 14.3V
				8V(Silk)			7.7V	7.2 ~ 8.0V
				TXB(Silk)			7.5V	7.0 ~ 8.0V
				RXB(Silk)			7.5V	7.0 ~ 8.0V
				FMB(Silk)				6.5 ~ 8.0V
				AMB(Silk)				6.5 ~ 8.0V
				CWN(Silk)				6.5 ~ 8.0V
				CWB(Silk)				6.5 ~ 8.0V
				SSB(Silk)				6.5 ~ 8.0V
	9)		Ctrl	(12)-1			5V	4.5 ~ 5.5V
2. RFG voltage	1) RF GAIN VR MAX		Signal	RXB(Silk)	Signal	VR22	3.1V	3.05 ~ 3.15V

ADJUSTMENT

PLL ADJUSTMENT

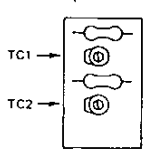
Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Reference frequency	1)	f. counter	Ctrl	TP5 (R77)	Ctrl	TC1	36.000000MHz	±10Hz
2. VCO-4	1)	DC V.M		TP8 (L53)		L54	5.0V	4.8 ~ 5.2V
3. VCO-3	1) FREQ. : 14.000.00 MODE : AM	f. counter		TP1 (L2)		L3	2.4V	2.3 ~ 2.5V
	2) FREQ. : 14.000.00 MODE : USB IF SHIFT VR : Center Control unit VR4 : CW MAX			①-1		VR2	455.700kHz	±5Hz
	3) IF SHIFT VR : CW MAX						Check	457.250kHz or more
	4) IF SHIFT VR : CCW MAX							454.125kHz or less
	5) IF SHIFT VR : Center Control unit VR4 : Center							
4. VCO-2	1) FREQ. : 13.999.90 MODE : AM	DC V.M		TP2 (L11)		L12	1.2V	1.1 ~ 1.3V
	2) FREQ. : 14.000.00 MODE : AM						Check	3.1 ~ 3.7V
5. VCO-2 BPF	1) FREQ. : 14.025.00 MODE : AM	Oscilloscope		TP3 (R51)		L17~ L19	Repeat 2 ~ 3 times Level MAX	1.4V/p-p or more (Ref. level : 1.75V/p-p)
				TP4 (W2)		L28, L29		0.3V/p-p or more (Ref. level : 0.4V/p-p)
				TP6 (R100)		L30~ L32		120mV/p-p or more (Ref. level : 150mV/p-p)
						L32, L42~ L44		80mV/p-p or more (Ref. level : 100mV/p-p)
	2) FREQ. : 10.025.00 MODE : AM							
	3) FREQ. : 24.525.00 MODE : AM					L39~ L41		
6. VCO-1	1) FREQ. : 59.999.90 MODE : AM TS-680S only.	DC V.M	Signal	⑥-2	Signal	L74	2.0V	1.9 ~ 2.1V
	2) FREQ. : 45.000.00 MODE : AM TS-680S only						Check	5.0 ~ 6.0V
	3) FREQ. : 34.999.90 MODE : AM					L72	6.0V	5.9 ~ 6.1V
	4) FREQ. : 21.500.00 MODE : AM						Check	2.0 ~ 3.0V
	5) FREQ. : 21.499.90 MODE : AM					L70	2.0V	1.9 ~ 2.1V
	6) FREQ. : 10.500.00 MODE : AM						Check	5.0 ~ 6.0V
	7) FREQ. : 10.499.90 MODE : AM					L68	2.0V	1.9 ~ 2.1V
	8) FREQ. : 50.00						Check	5.5 ~ 6.5V

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

ADJUSTMENT

RX ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. RX AMP	1) FREQ. 14.175 00 MODE : USB SSG output . Optional output from 10dBμ to -6dBμ	SSG AF V.M Oscilloscope 8Ω dummy load		EXT SP	Signal	L52~ L55, L57,59 L60,64 L65,89	Adjust from L52 to L89	MAX. AF output
	2) SSG output : -6dBμ					L52~ L55	Repeat 2 ~ 3 times	MAX. AF output
2 FM AMP.	1) FREQ. 28 800 00 MODE : FM SSG output 30dBμ (MOD : 1kHz, DEV. ±3kHz)					L86	MAX. AF output.	No distortion in AF waveform
3 1st MIX balance	1) FREQ. : 100 00 MODE : USB SSG output . OFF					VR1	MIN. AF noise output	
4 2nd MIX balance	1) FREQ. : 14.175 00 MODE : USB SSG output . OFF					VR2	MAX. AF noise output	
5-1 IF trap	1) FREQ. : 29MHz MODE : USB SSG output 60dBμ~80dBμ SSG FREQ. : 40 055MHz					L1,46	1) MIN. AF output at 60dBμ of SSG output 2) Readjust to MIN AF output at 80dBμ of SSG output	50dB or more
5-2 IF trap TS-140S W type only	1) FREQ. 11 800 00 MODE : USB SSG output 0dB					TC2	MIN. AF output	
	2) FREQ. 15 200 00					TC1	MIN. AF output Repeat 2 ~ 3 times	
6 RF AMP TS-680S only	1) FREQ. 28 800 00 MODE : USB SSG output . -10dBμ RF AMP SW ON					L37	MAX. AF output	
	2) FREQ. 50 500 00					L42		
	3) RF AMP SW OFF							
7 S-meter	1) FREQ. 14 175 00 MODE : USB AGC SW . FAST							
	• φ point SSG output OFF					VR26	Set to starting point, (Meter zero)	
	• S1 SSG output 6dBμ					VR3	S-meter "1"	
	• S9 SSG output 32dBμ					VR10	S-meter "9"	
	• S1 check SSG output . 6dBμ						Check	6dBμ ± 3dBμ
	• VHF S-meter (TS-680S only) FREQ. : 50.500 00 MODE : USB SSG output . 32dBμ					VR11	S-meter "9"	
	• FM meter FREQ. : 28.800 00 MODE : FM SSG output : 30dBμ (MOD : OFF) RF AMP SW OFF (TS-680S only)					VR12	S-meter "9 + 20"	



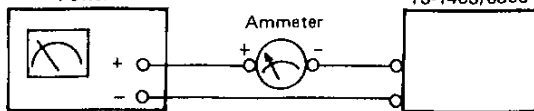
FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

ADJUSTMENT


Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
8. RIT	1) Set the Power SW ON, while depressing the CLEAR key			Display			Check	Display of 10Hz is displayed
	2) FREQ. : 14 000.00 MODE : USB RIT VR : Center RIT SW : ON				Ctrl	VR1	Set display to MAIN 14,000.00 RIT 0.0	
	3) RIT VR : CW MAX						Check	Display MAIN : 14,001.27 or more RIT : 1.2 or more
	4) RIT VR : CCW MAX						Check	Display MAIN : 13 998.72 or less RIT : - 1.2 or less.
	5) RIT VR : Center RIT SW : OFF							
9. NB	1) FREQ. : 14,200.00 MODE : USB SSG output : 30dBμ NB1 SW : ON	SSG DC V M	Signal	L83	Signal	L84,85	MIN voltage	
	2) Connect the noise generator to the ANT terminal.	Noise generator		S meter			Check	The same effect as NB1 is obtained
	3) NB1 SW : OFF NB2 SW : ON							
	4) Disconnect the noise generator from the ANT terminal NB2 SW : OFF							

TX ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. TX AMP	1) FREQ. : 50,200.00 (TS-680S) FREQ. : 21,200.00 (TS-140S) MODE : CW Signal unit VR19 : Center CW SW : FULL SEND/REC SW : SEND	Spectrum analyzer	Signal	DRV	Signal	L89,95 L113 VR20	Adjust CAR VR to level no to be saturated, and MAX output	MAX. output (Ref. level : 13dBm or more)
	2) SEND/REC SW : REC							
2. 455kHz spurious	1) FREQ. : 50,200.00 (TS-680S) FREQ. : 21,200.00 (TS-140S) SEND/REC SW : SEND					L53	MIN Spurious level of 455kHz	
	2) After adjustment, reconnected DRV SEND/REC SW : REC							
3. Base current	1) FREQ. : 14,200.00 MODE : USB MIC VR : MIN PWR VR : MIN Final unit VR1, 2 : CCW MAX SEND/REC SW : SEND	Ammeter		DC cord	Final	VR1	1) Record current before adjusting VR1 and VR2. 2) Adjust VR1 for an increase for +250mA	250mA ± 50mA (Total current : 1.7 ~ 1.8A)
	2) SEND/REC SW : REC					VR2	Adjust VR2 so that the current is increase of above item 2) 250mA	500mA ± 50mA (Total current : 1.95 ~ 2.05A)



ADJUSTMENT

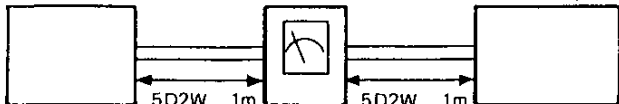
Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
4 Power	• CW 1) FREQ . 14 200 00 MODE : CW PWR VR . MAX  S2 LO Signal unit S2 : HI SEND/REC SW . SEND	Power meter	Rear	ANT	Signal	VR17	95W	+5W
	2) SEND/REC SW . REC							
	• FM 3) FREQ . 29 700 00 MODE : FM Filter unit VR1 . Center PWR VR . MAX Signal unit S2 : HI SEND/REC SW . SEND					VR14	50W	
	4) SEND/REC SW . REC							
	• SSB 5) FREQ . 14 200 00 MODE . USB PWR VR . MAX MIC VR . Center Display unit VR5 CCW MAX MIC input . 1kHz, 5mV SEND/REC SW . SEND					VR13	100W	±5W
	6) SEND/REC SW . REC							
	• 50MHz (TS-680S only) 7) FREQ . 51.200 00 MODE . CW PWR VR . Center Signal unit VR15 . CW MAX SEND/REC SW . SEND				Filter	TC1	Adjust PWR VR to set output about 10W MAX output at TC1	
	8) PWR VR . MAX				Signal	VR15	11W	+0.5W
	9) SEND/REC SW . REC							
	• MIN POWER 10) FREQ . 51 200 00 (TS 680S) FREQ . 29 700 00 (TS 140S) MODE . FM PWR VR . MIN SEND/REC SW . SEND					VR18	1W (TS-680S) 5W (TS-140S)	
	11) SEND/REC SW . REC PWR VR . MAX							
5 NULL	1) FREQ . 3 700 00 MODE . CW SEND/REC SW . SEND	Power meter DC V M	Signal	VSR (13) -2)	Filter	TC2	MIN	
	2) SEND/REC SW . REC							
6 Protection	1) FREQ . 14.200 00 MODE . CW SEND/REC SW . SEND	Power meter 150Ω dummy load	Rear	ANT	Signal	VR16	30W	
	2) SEND/REC SW . REC							

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

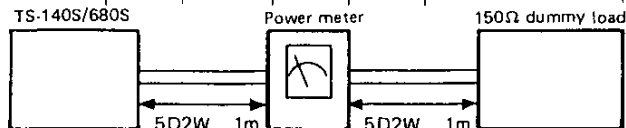
TS-140S/680S

Power meter

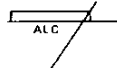
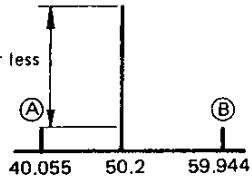
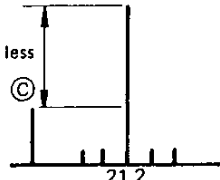
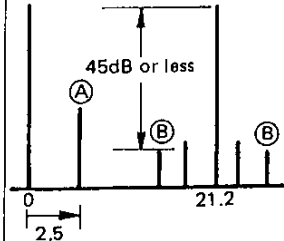
150Ω dummy load



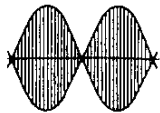
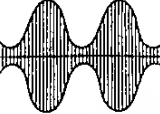
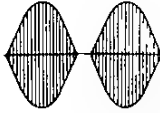
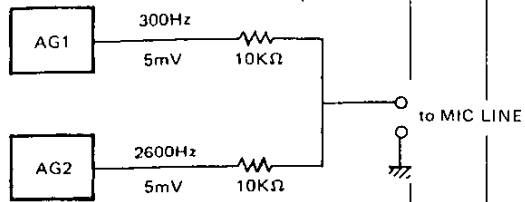
FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554



ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
7. Power meter	1) FREQ. : 14,200.00 MODE : CW ALC/PWR SW : PWR SEND/REC SW : SEND	Power meter	Rear	ANT	Signal	VR25	Adjust to 90W by CAR VR	RF meter : 90W
	2) SEND/REC SW : REC							
8. ALC meter	1) FREQ. : 14,200.00 MODE : USB PWR VR : MAX MIC VR : MAX ALC/PWR SW : ALC Filter unit VR5 : Center	Power meter AG AF V.M		ALC meter	Signal			
	• ϕ point 2) SEND/REC SW : SEND					VR8	Adjust to the "0" of ALC meter reading	
	3) SEND/REC SW : REC							
	• Start point 4) MIC input 1kHz, 15mV SEND/REC SW : SEND						Adjust to the "0" of ALC meter reading by MIC VR	
	5) SEND/REC SW : REC							
	• MAX 6) MIC input 1kHz, 3mV SEND/REC SW : SEND					VR9	Adjust ALC meter MAX within ALC zone.	
	7) ALC/PWR SW : PWR SEND/REC SW : REC							
9-1 Spurious TS-680S only	• 50MHz 1) FREQ 50,200.00 MODE : CW PWR VR : MAX SEND/REC SW : SEND	Power meter Spectrum analyzer	Rear	ANT	Signal	VR19	Adjust as shown at right (MIN spurious of A and B)	(60dB or less) 
	2) SEND/REC SW : REC							
	• 21MHz 3) FREQ 21,200.00 SEND/REC SW : SEND					L97	Adjust as shown at right (MIN spurious of C)	(45dB or less) 
9-2. Spurious TS-140S only.	1) FREQ : 21,200.00 MODE : CW PWR VR : MAX SEND/REC SW : SEND					VR19 L97	1) Adjust L97 to MIN spurious of A. 2) Adjust VR19 to MIN spurious of B	(45dB or less) 
	2) SEND/REC SW : REC							

ADJUSTMENT

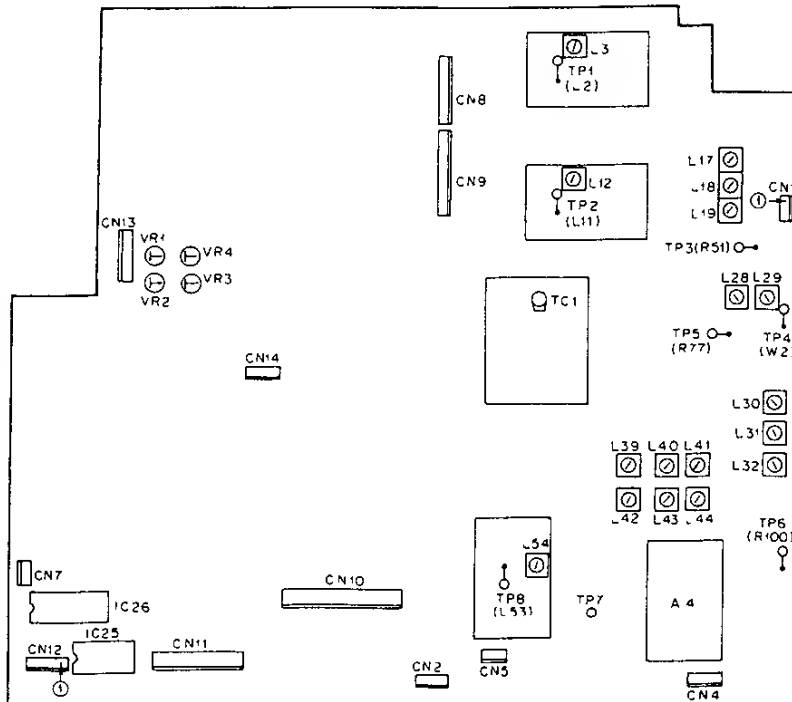
Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
10. CAR suppression	1) FREQ . 14 200 00 MODE . USB or LSB MIC VR : MIN SEND/REC SW . SEND	Power meter Oscilloscope or Spectrum analyzer	Rear	ANT	Signal	VR4 VR5	MIN. Adjust for no difference between USB and LSB	-40dB or less.
	2) SEND/REC SW REC							
11 TX frequency response	1) FREQ . 14.200 00 MODE . USB or LSB AG output 2 tone, 5mV 300Hz, 2600Hz SEND/REC SW . SEND MIC VR ALC meter "0"	Power meter Oscilloscope or Spectrum analyzer AG			Ctrl	VR3 (LSB) VR4 (USB)	Adjust as shown at right	<div>OK</div>  <div>NG</div>  <div>NG</div> 
								
12 Processor	1) FREQ 14 200 00 MODE USB PROC SW ON ALC/PWR SW ALC AG output 1kHz, 10mV SEND/REC SW . SEND	Power meter AG AF V M					Adjust for ALC zone MAX with MIC GAIN VR	
	2) AG output 20dB down						Check	
	3) SEND/REC SW REC							
13 FM DEV	1) FREQ 28 700 00 MODE FM MIC input 1kHz, 30mV SEND/REC SW SEND	Power meter AG AF V M Linear detector			Signal	VR24	4.6kHz	±0.1kHz
	2) MIC input 1kHz, 3mV					VR6	3kHz	+0.1kHz
	3) SEND/REC SW REC							
14 Side tone monitor level	1) FREQ 14.200 00 MODE CW AF VR Center Signal unit VR7 CW MAX CW SW SEMI Connect the KEY to the KEY jack	Power meter AF V.M Oscilloscope 8Ω load		EXT SP		VR21	0.25V/8Ω	+0.05V
	2) Disconnect the KEY from the KEY jack CW SW OFF							
15 Beep sound	1) Depress the LSB/USB key continuously					VR23	Check	200 ~ 400mV

FOR SERVICE MANUALS
 CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
 TEL: 01844 - 351694
 FAX: 01844 - 352554

ADJUSTMENT

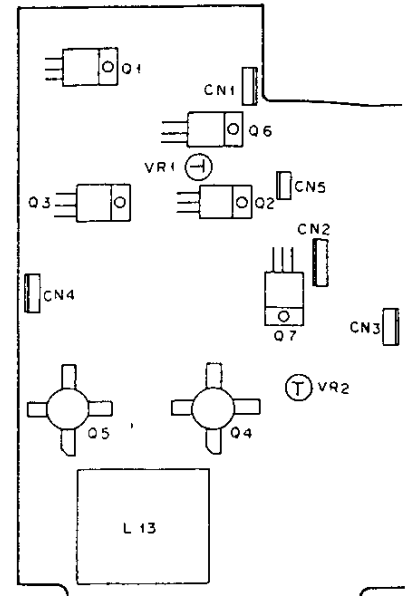
ADJUSTMENT POINT (Bottom view)

• CONTROL UNIT

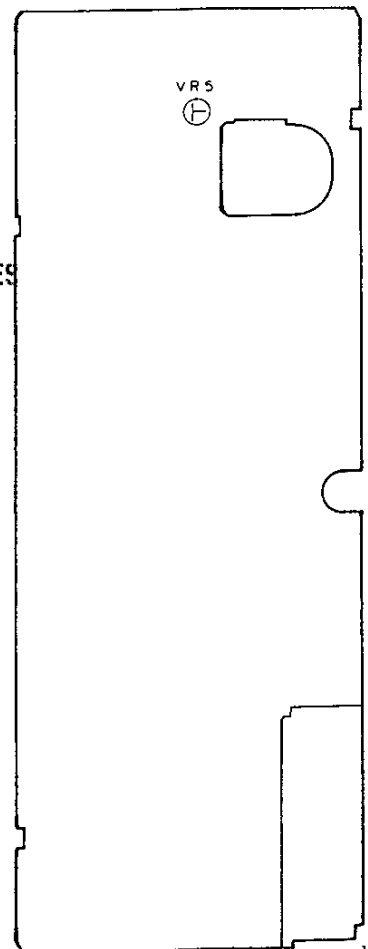


(Top view)

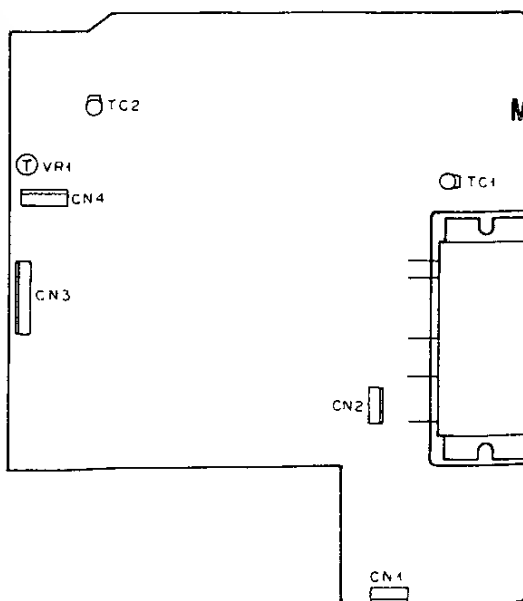
• FINAL UNIT



• DISPLAY UNIT



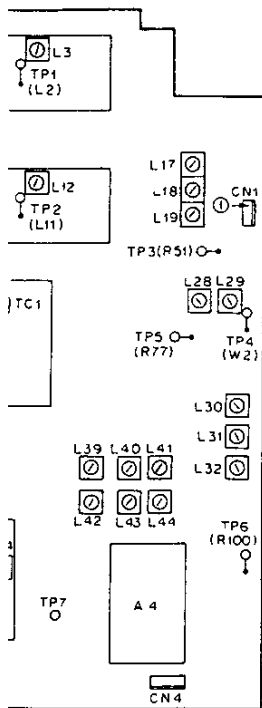
• FILTER UNIT



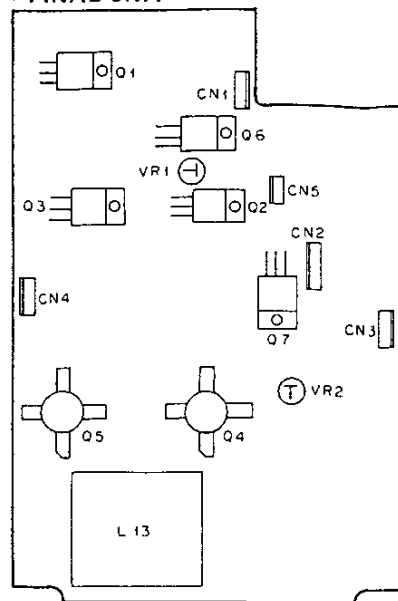
FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

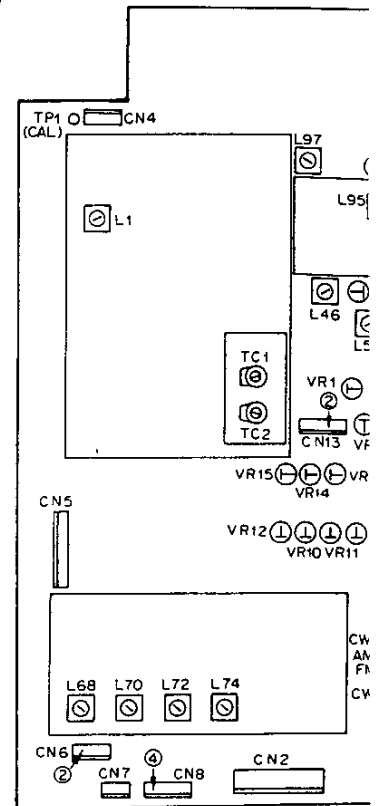
DJUSTMENT



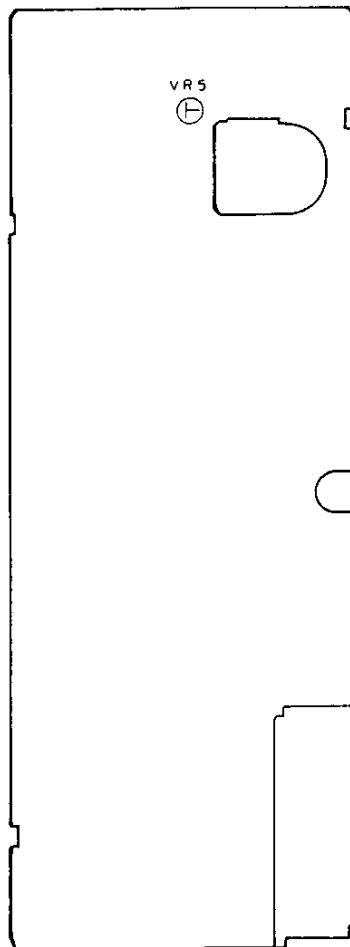
(Top view)
● FINAL UNIT



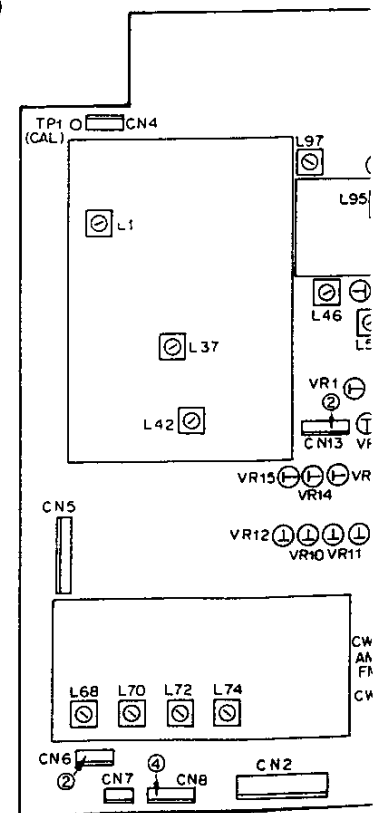
● SIGNAL UNIT
(TS-140S)



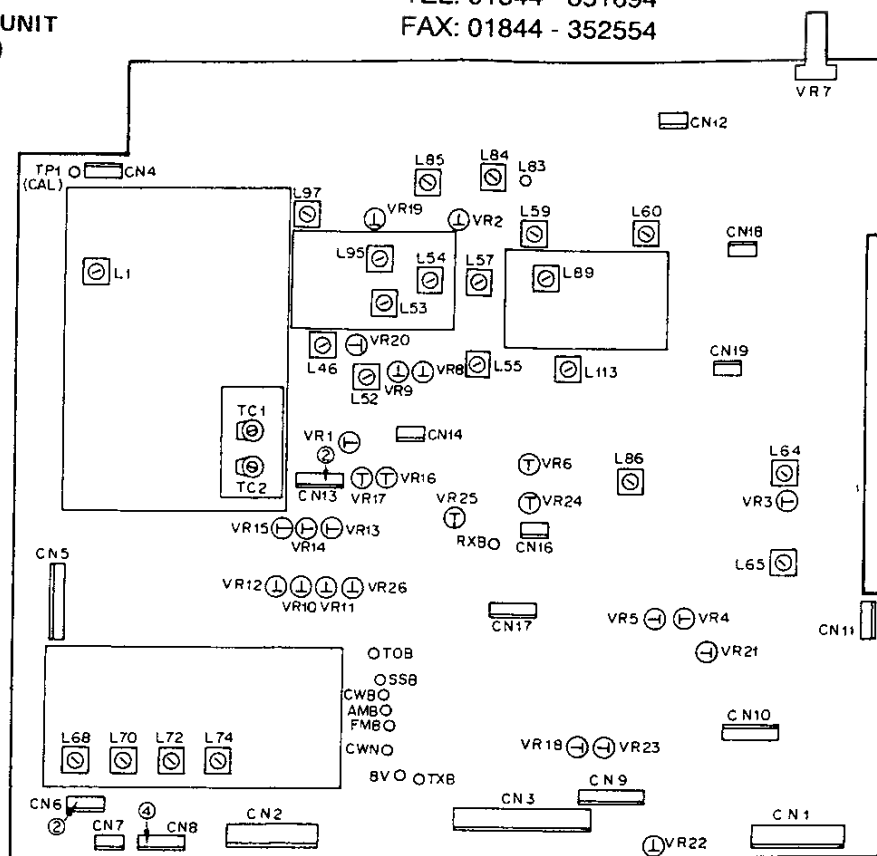
● DISPLAY UNIT



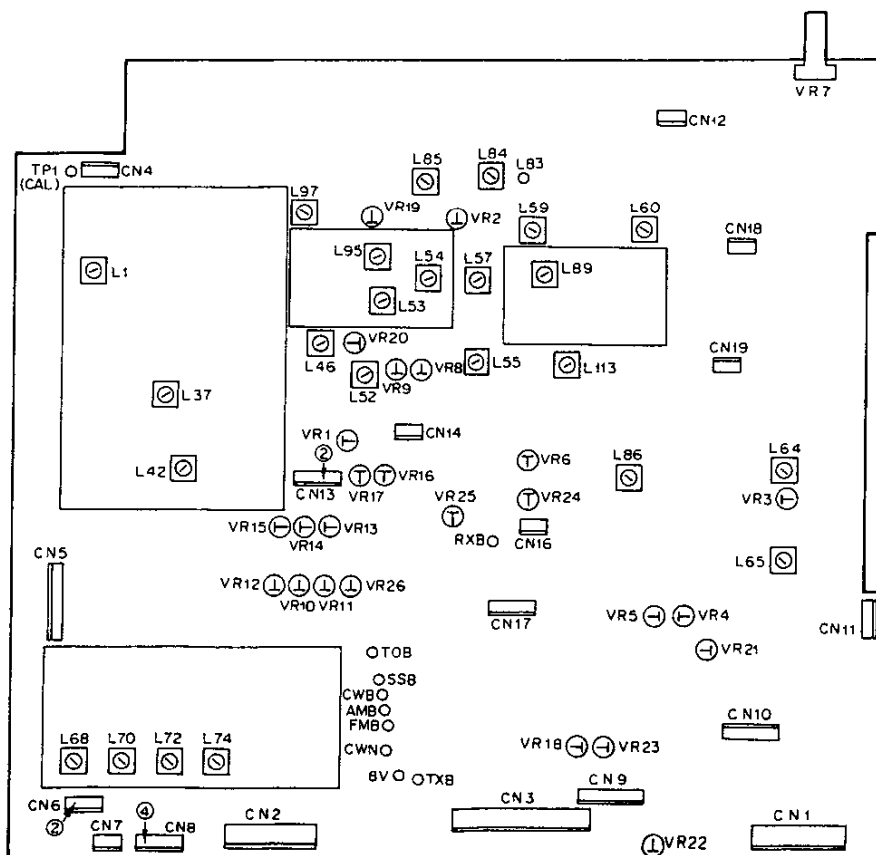
(TS-680S)

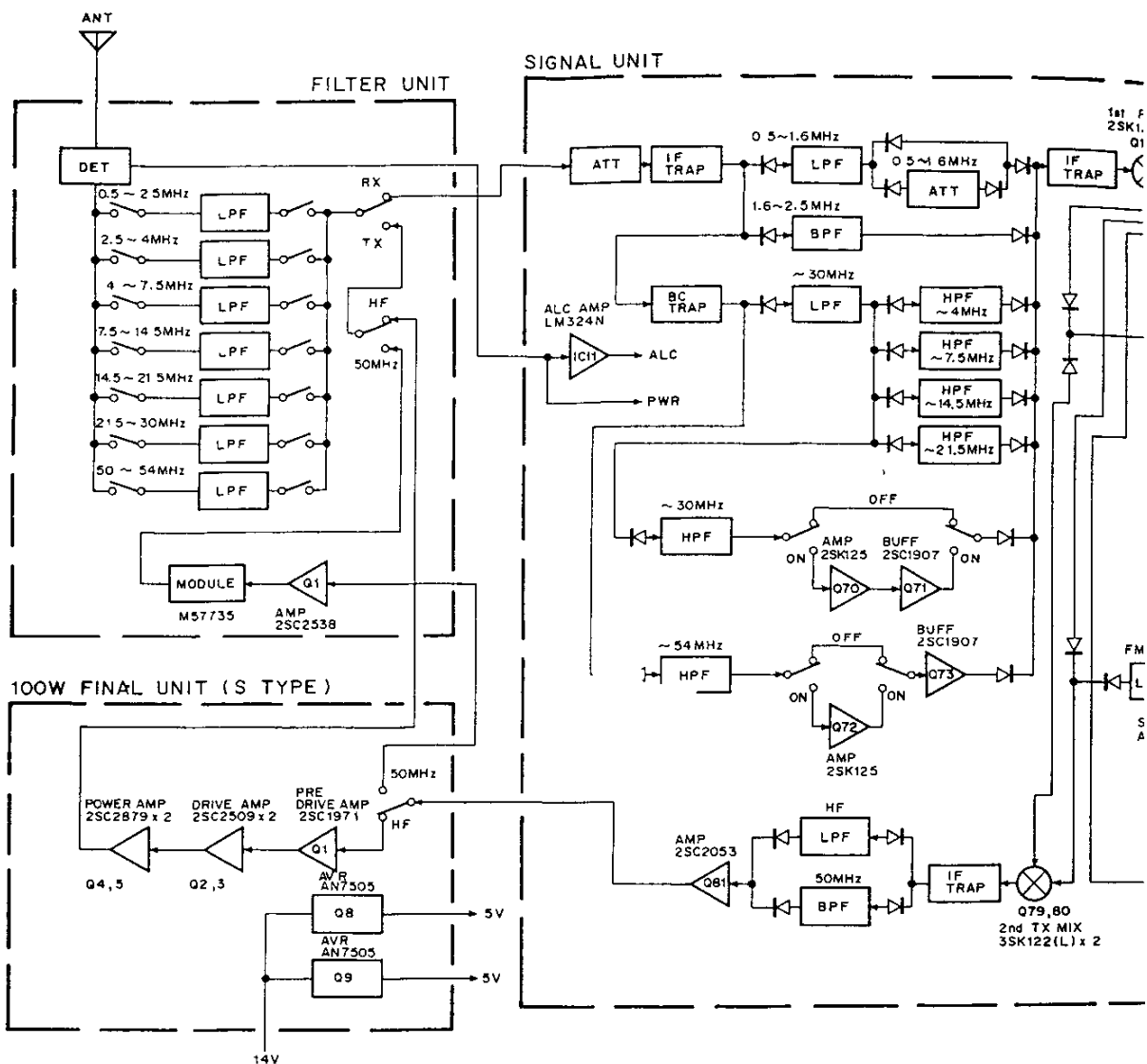


● SIGNAL UNIT
(TS-140S)

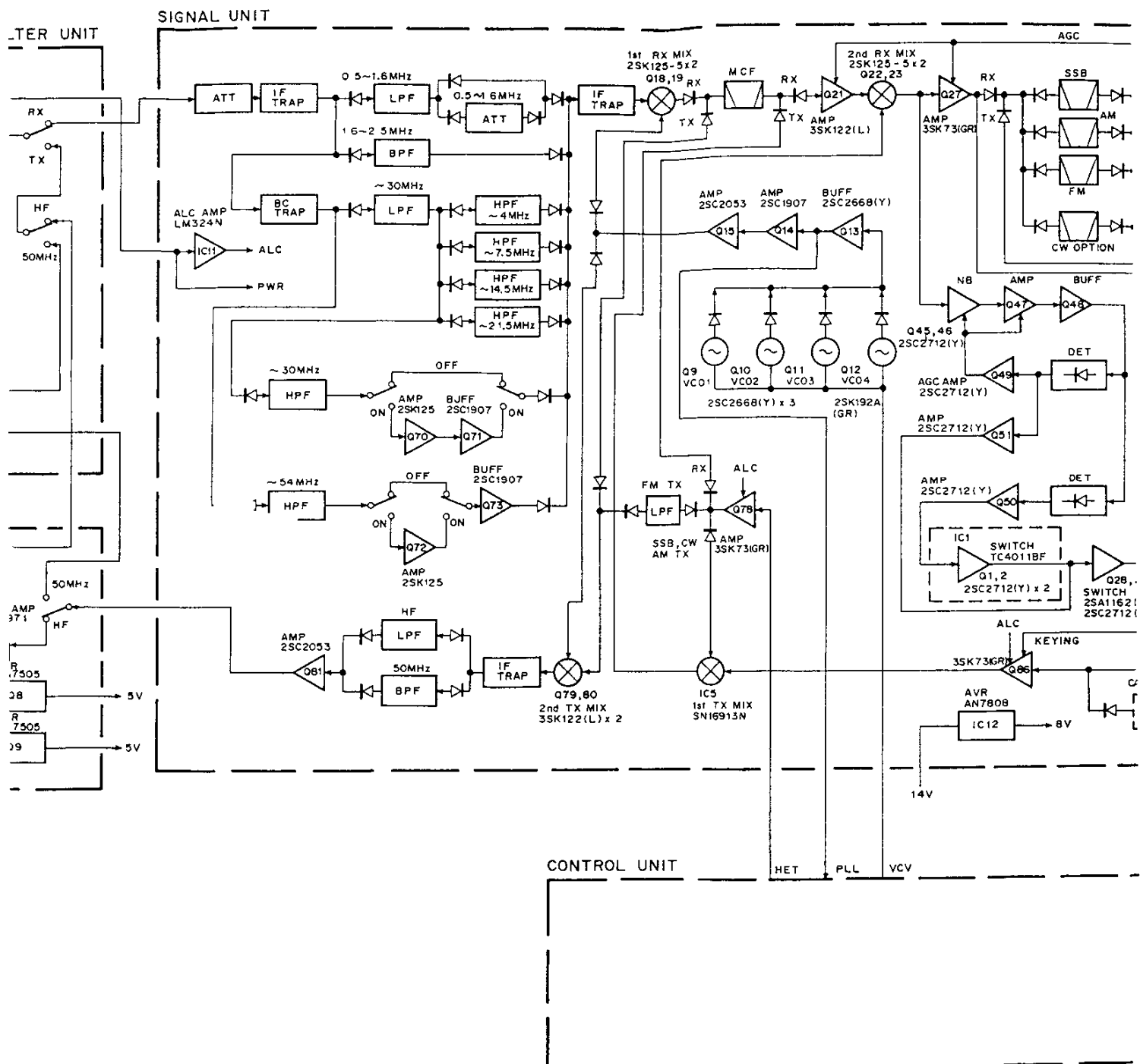


(TS-680S)



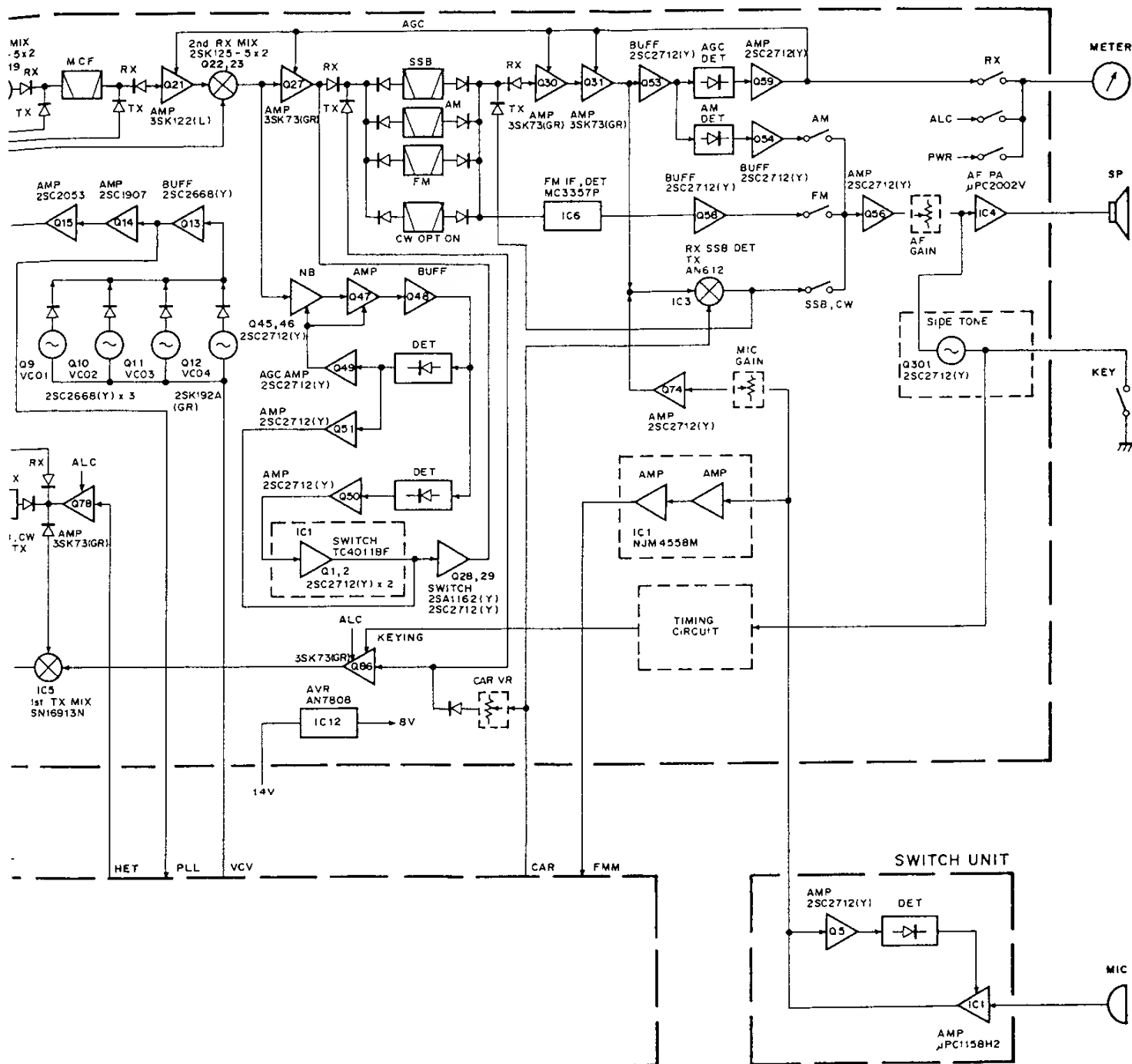


BLOCK DIAGRAM (TS-680S)



TS-140S/680S

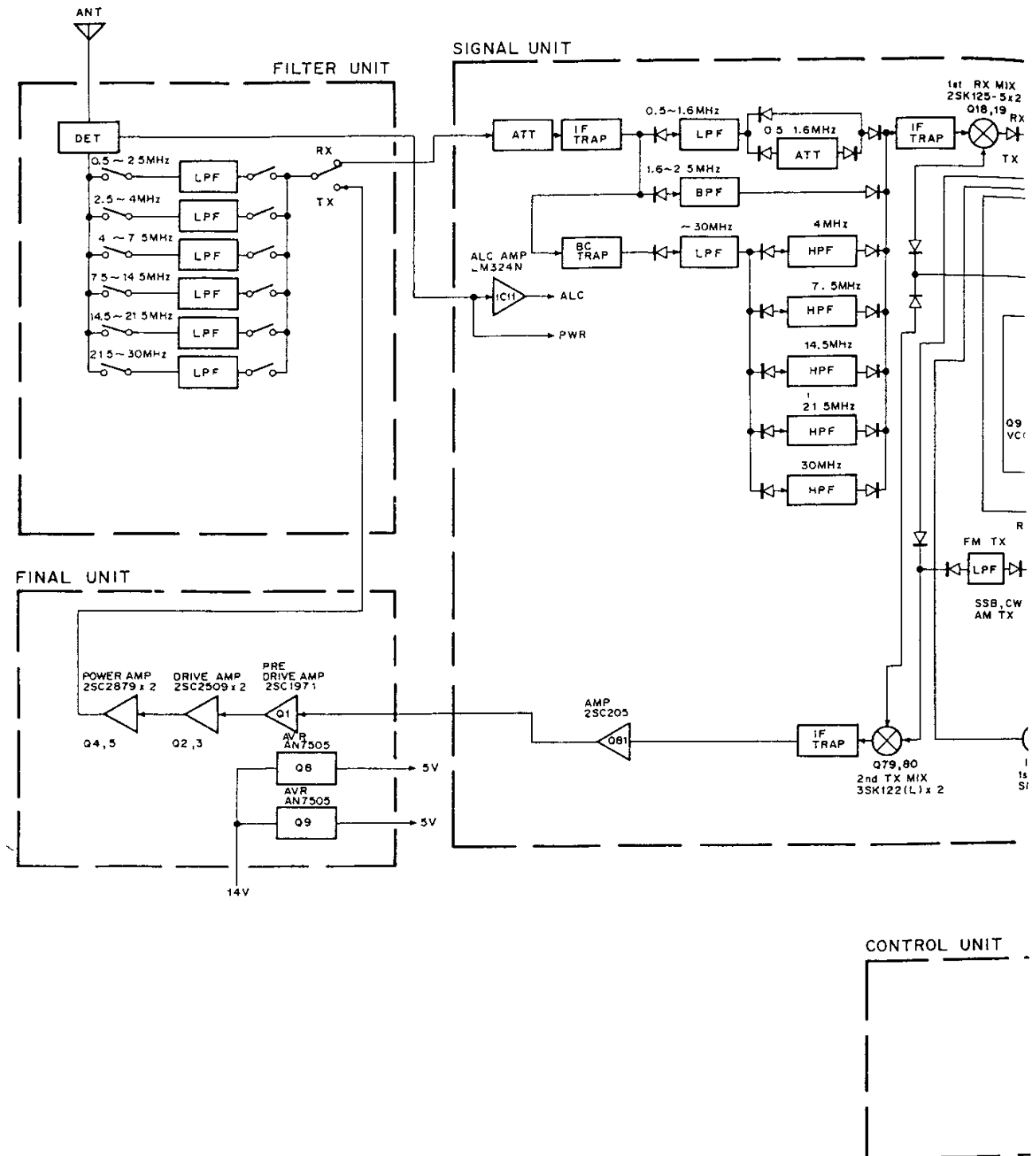
GRAM (TS-680S)



FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

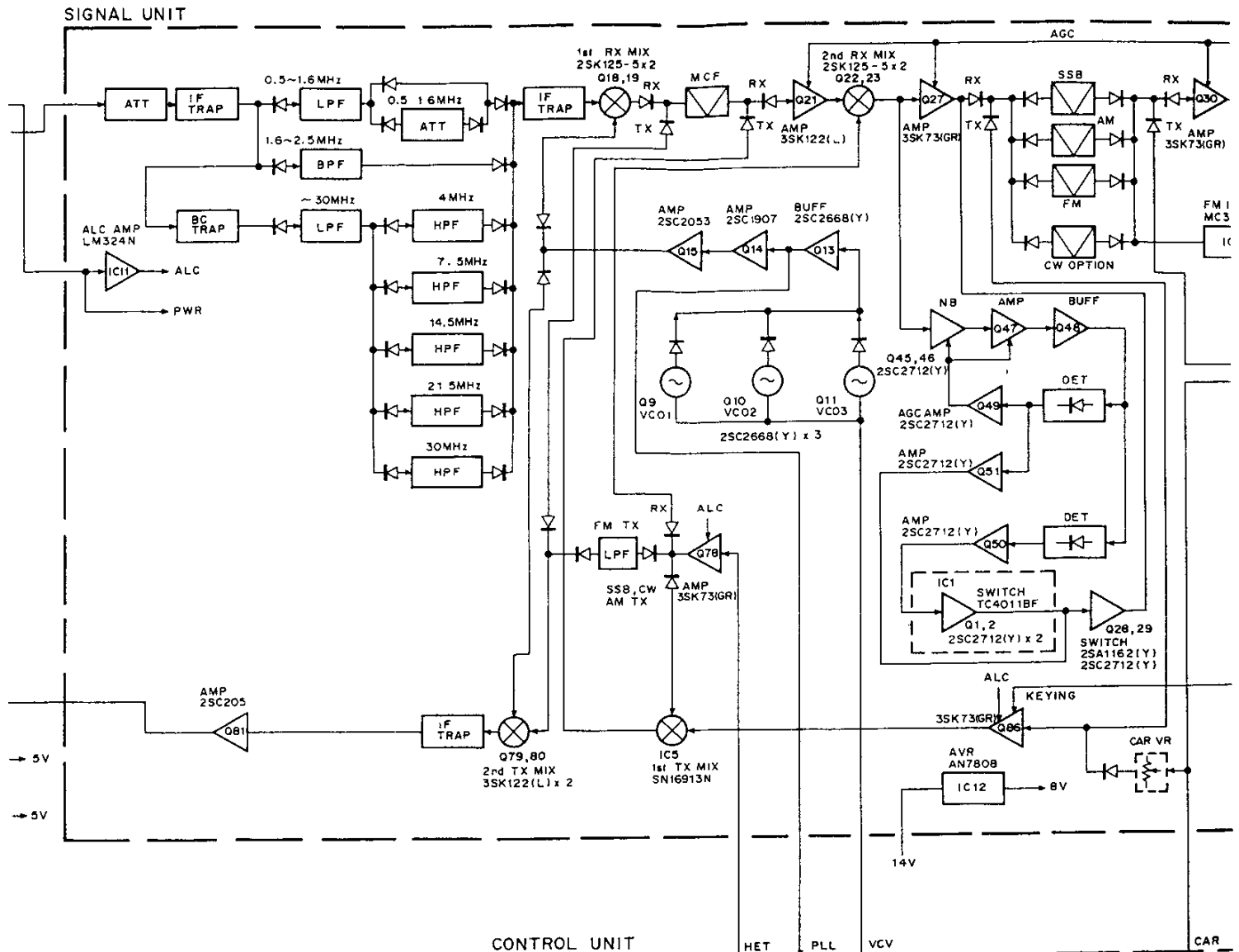
TS-140S/6

BLOCK



TS-140S/680S TS-140S/680S

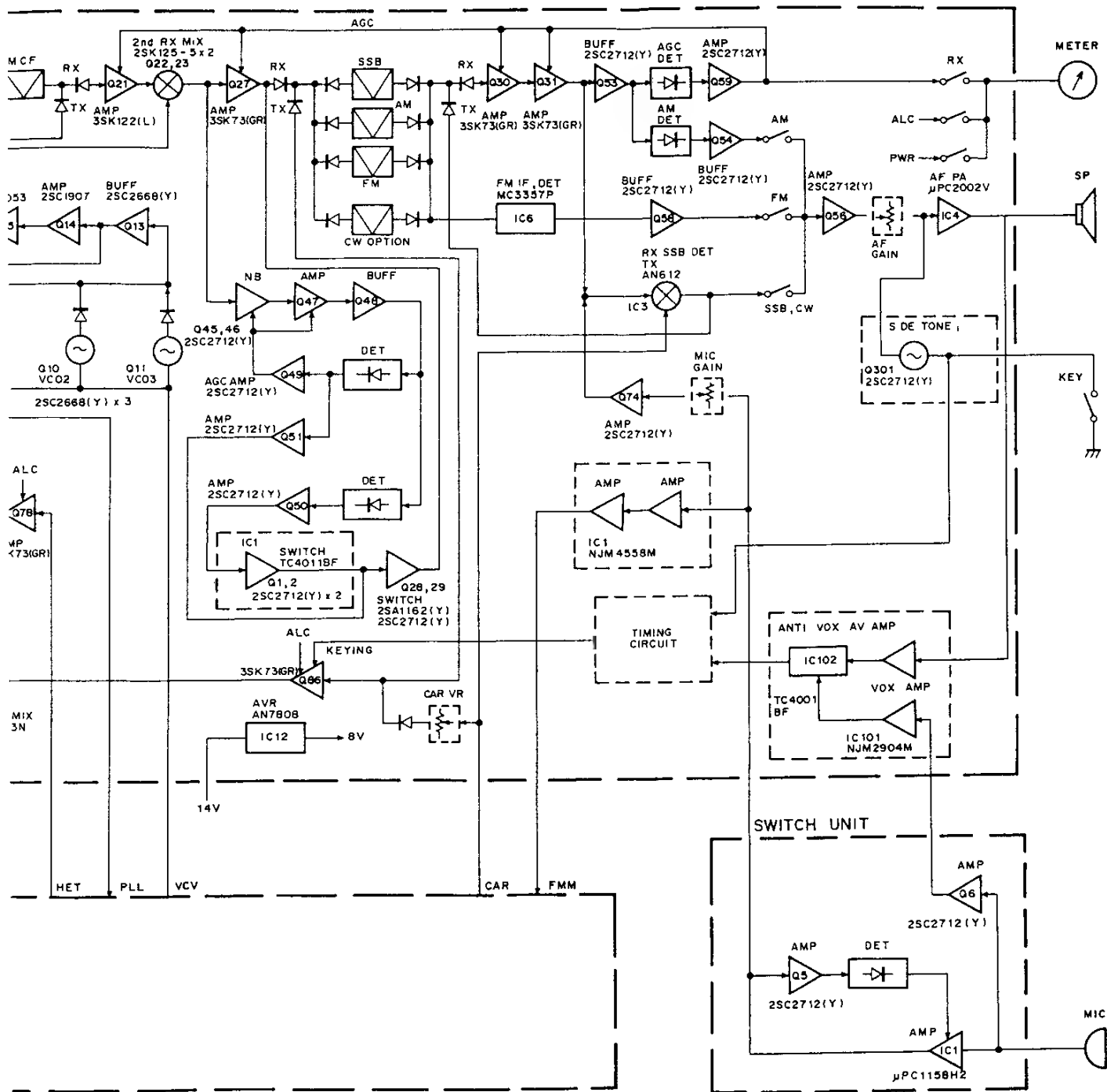
BLOCK DIAGRAM (TS-140S)



FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

OS TS-140S/680S

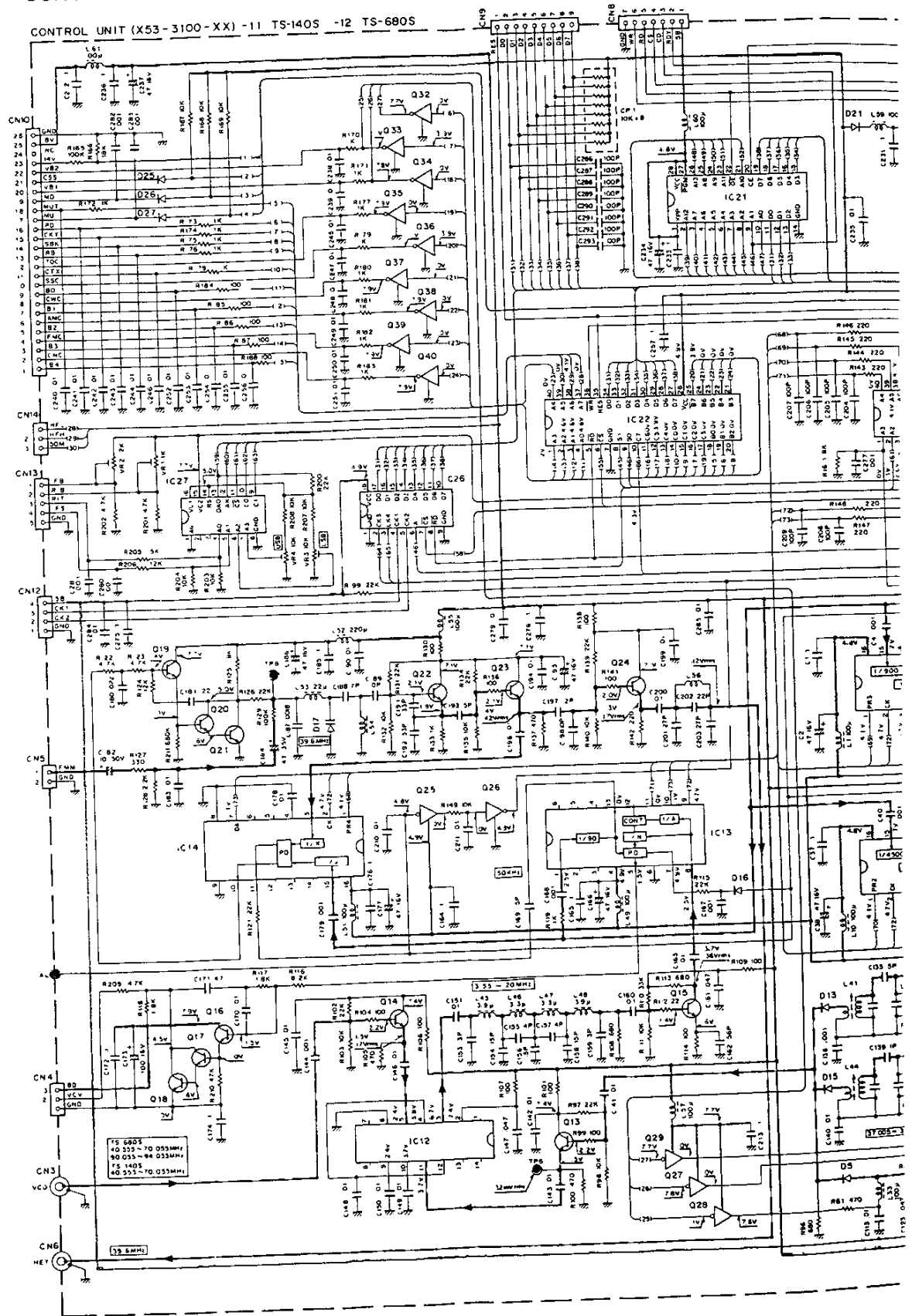
IAGRAM (TS-140S)



TS-140S/680S CIRCUIT DIAGRAM

CONTROL UNIT (X53-3100-XX)

CONTROL UNIT (X53-3100-XX) -11 TS-140S -12 TS-680S



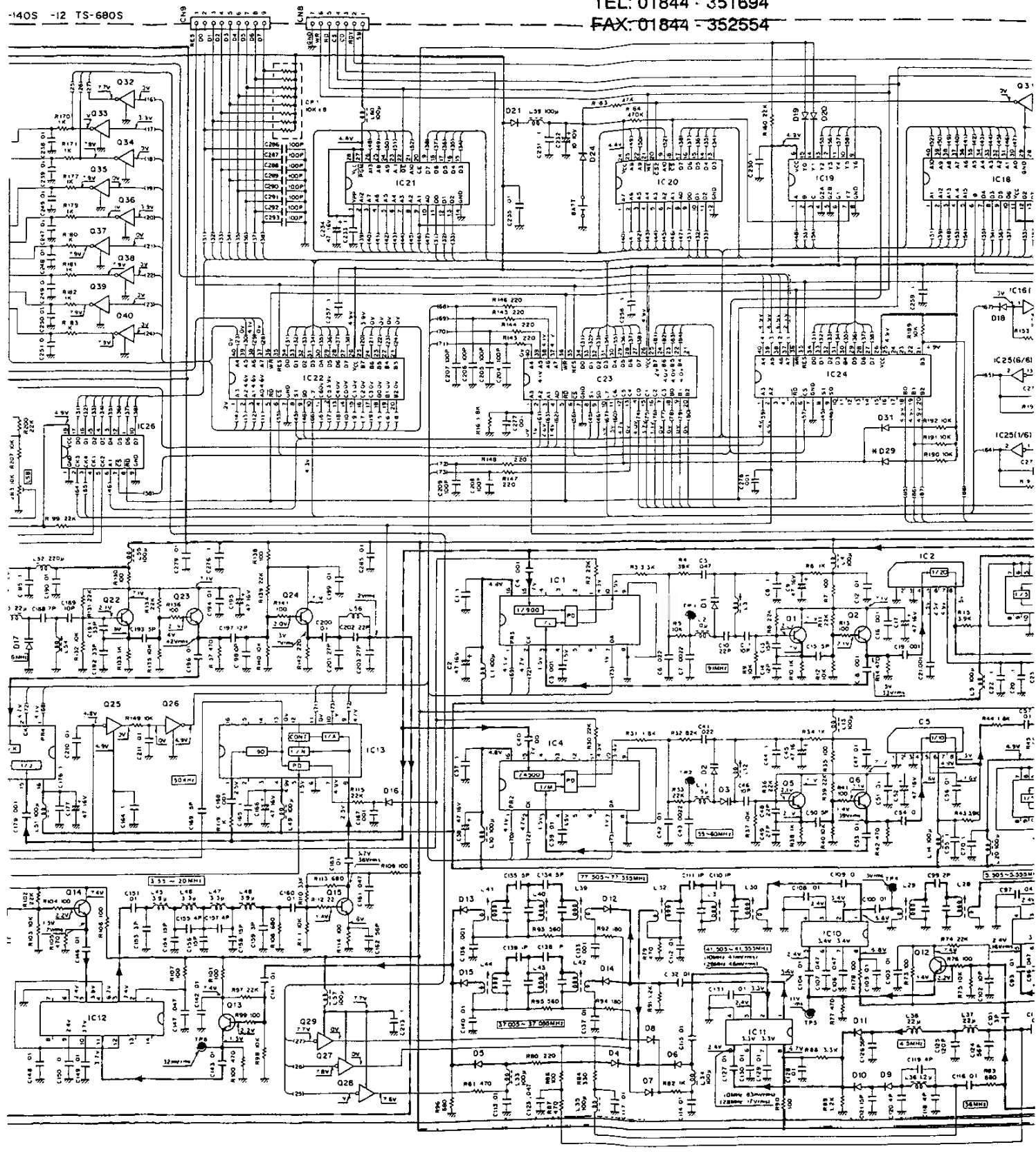
CIRCUIT DIAGRAM

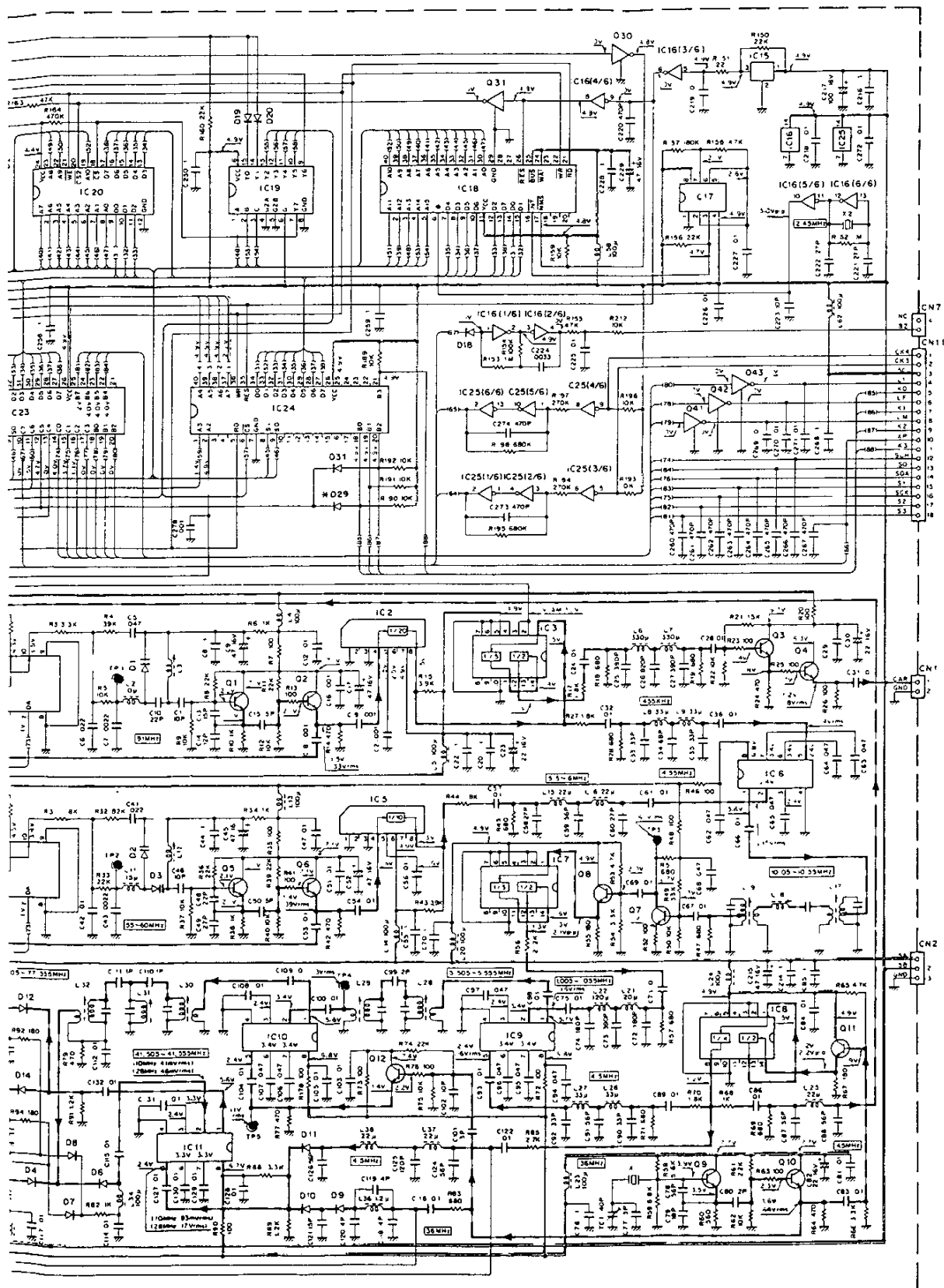
J-XX)

-140S -12 TS-680S

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 351694
FAX: 01844 352554

Volt:





D1	15V53A
D2,3	1T7310TE
D4-6	RLS135
9-15	
D7,8,6	RLS73
16-21	
24-27	
D17	15V153
D29,31	15S133
(D29 TS-1405 ONLY)	
C1,4,14	M54927P
C2	M54459L
IC3,7	SN74LS90N
IC5	M54460L
IC6,9,10,11	SN16913P
C8	M74LS93P
C12	SN76514N
C13	M89706A
IC15	PS75200
IC16,25	TC4069BUP
IC17	NE555C
IC18	BU18400A
C19	SN74LS138N
IC20	TC5518CPL 20
IC21	MBM27C128-25JA2
IC22-24	TMP8255AP-5
IC26	L292K37
IC27	M94052
D1,2,5,6	25C2668(Y)
10-15	
22-24	
D3,7,8	25C2458(Y)
D4	25C1959(Y)
D9	25C2787(L)
D16-21	25C2459(BL)
D25	DTA124ES
D26	DTA124ES
D27-29	DTA143ES
D30-40	DTA144WS
Q41-43	DTA143TS

FOR SERVICE MANUALS

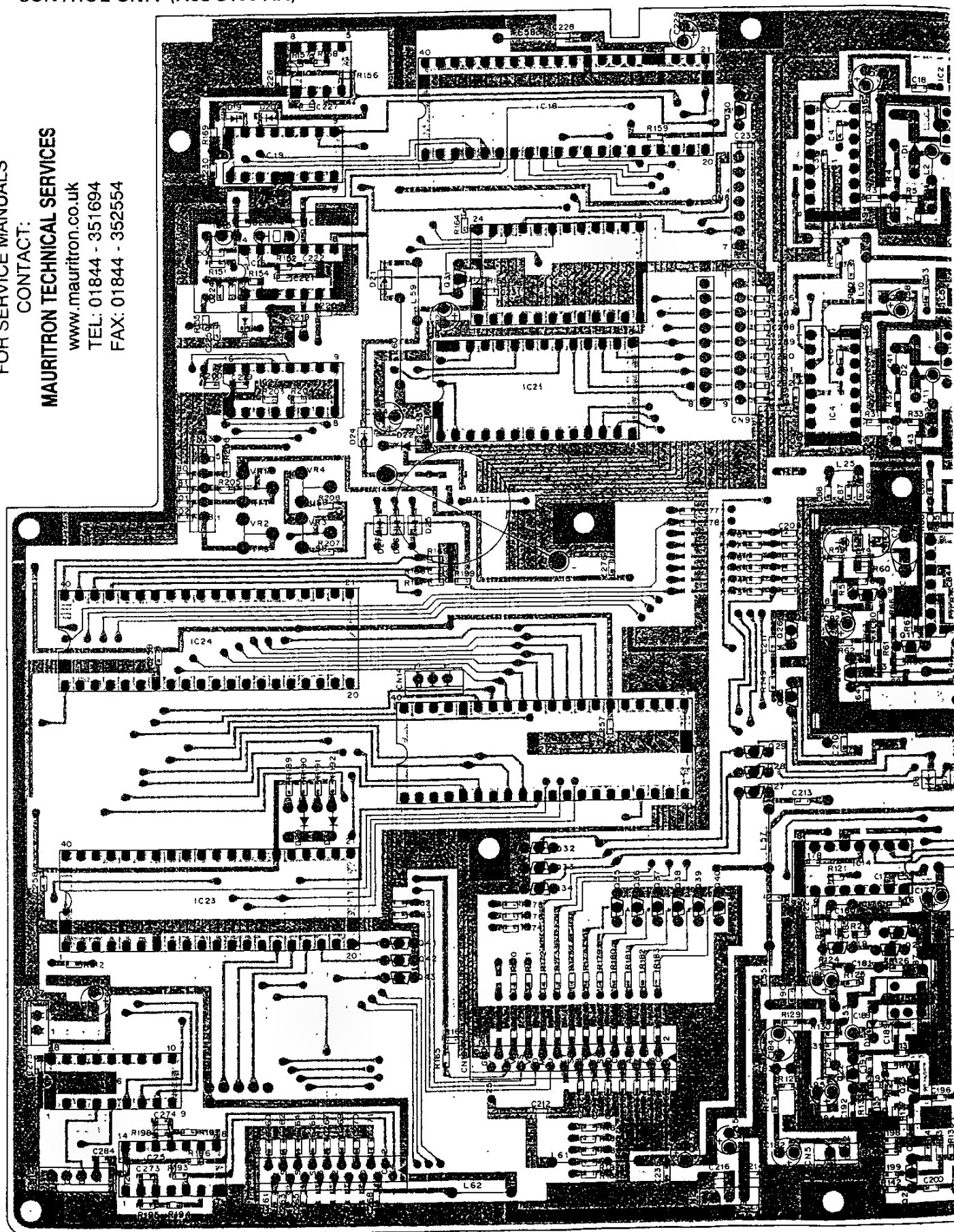
CONTACT:

MAURITRON TECHNICAL SERVICES

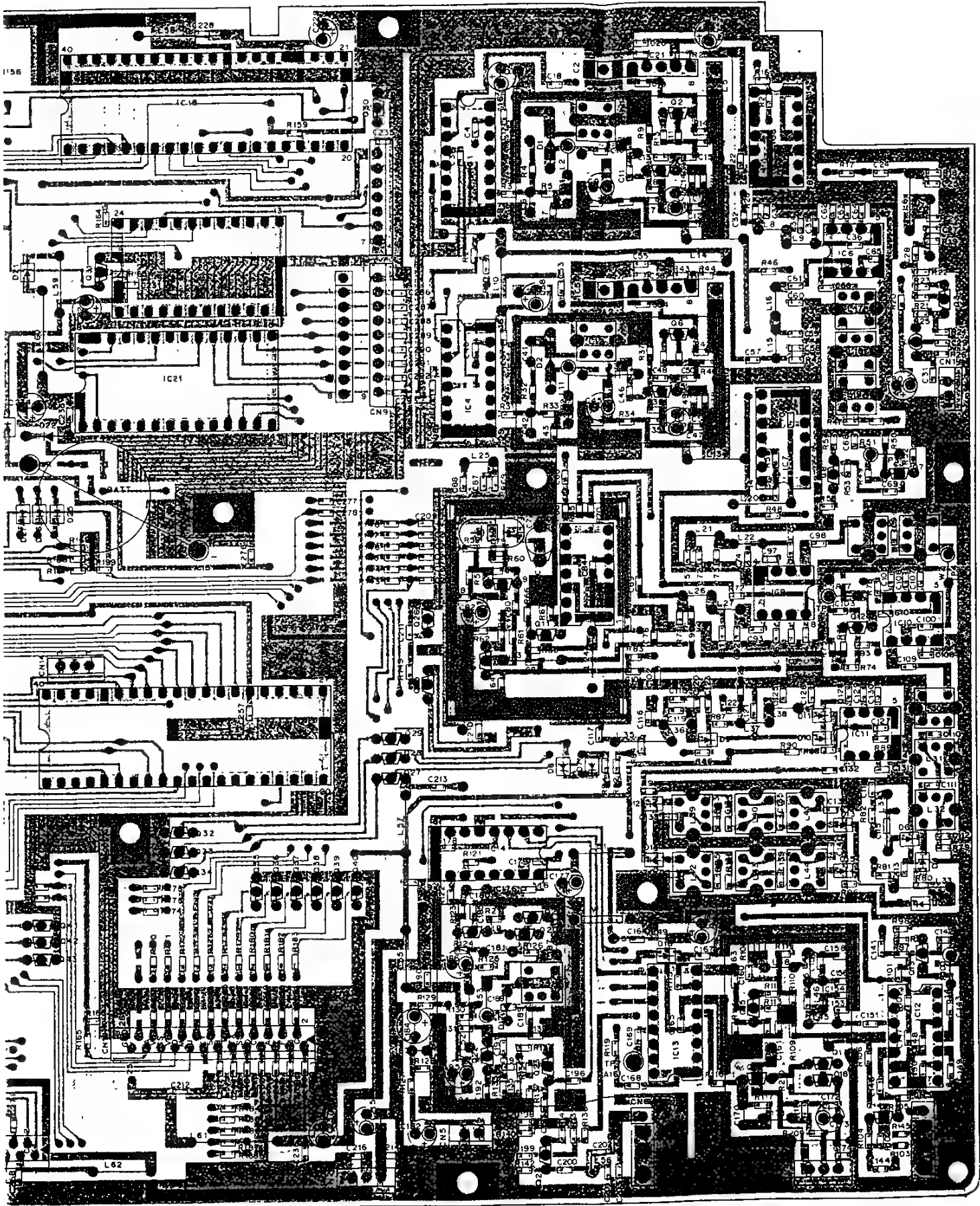
www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554



S-140S -12 : TS-680S Component side view



FOR SERVICE MANUALS

CONTROL UNIT (X53-3100-XX) -11: TS-140S -12:

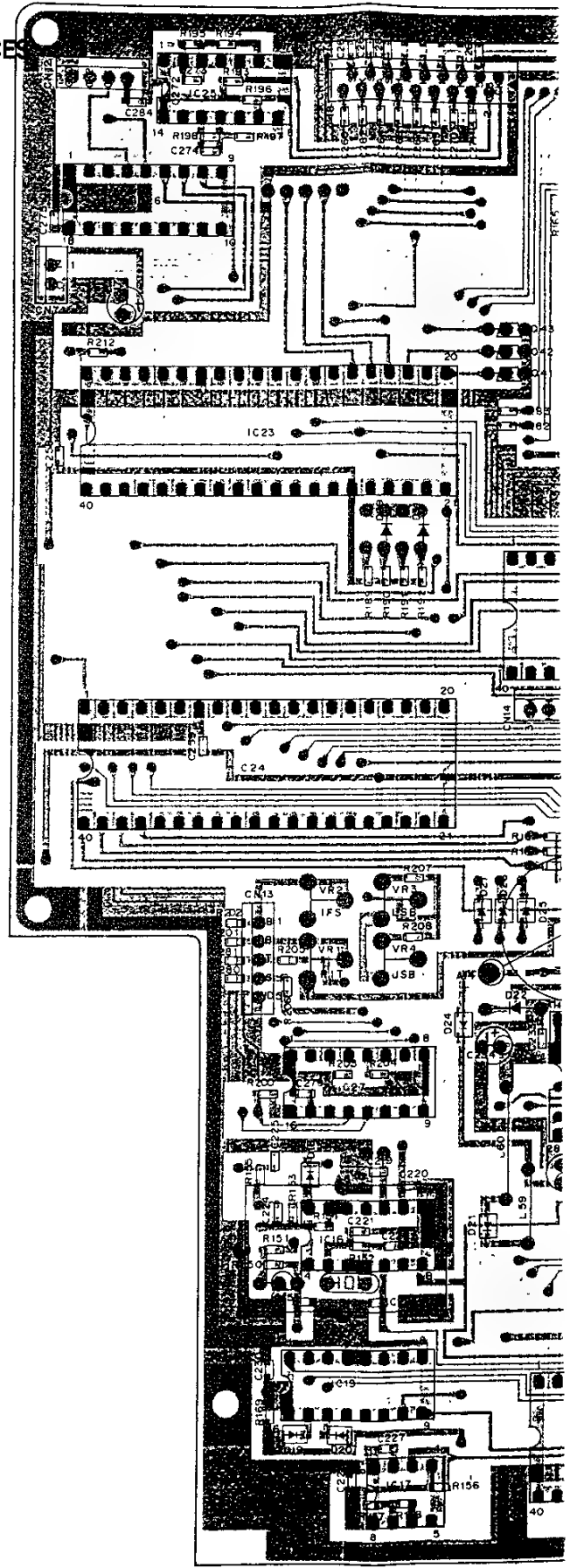
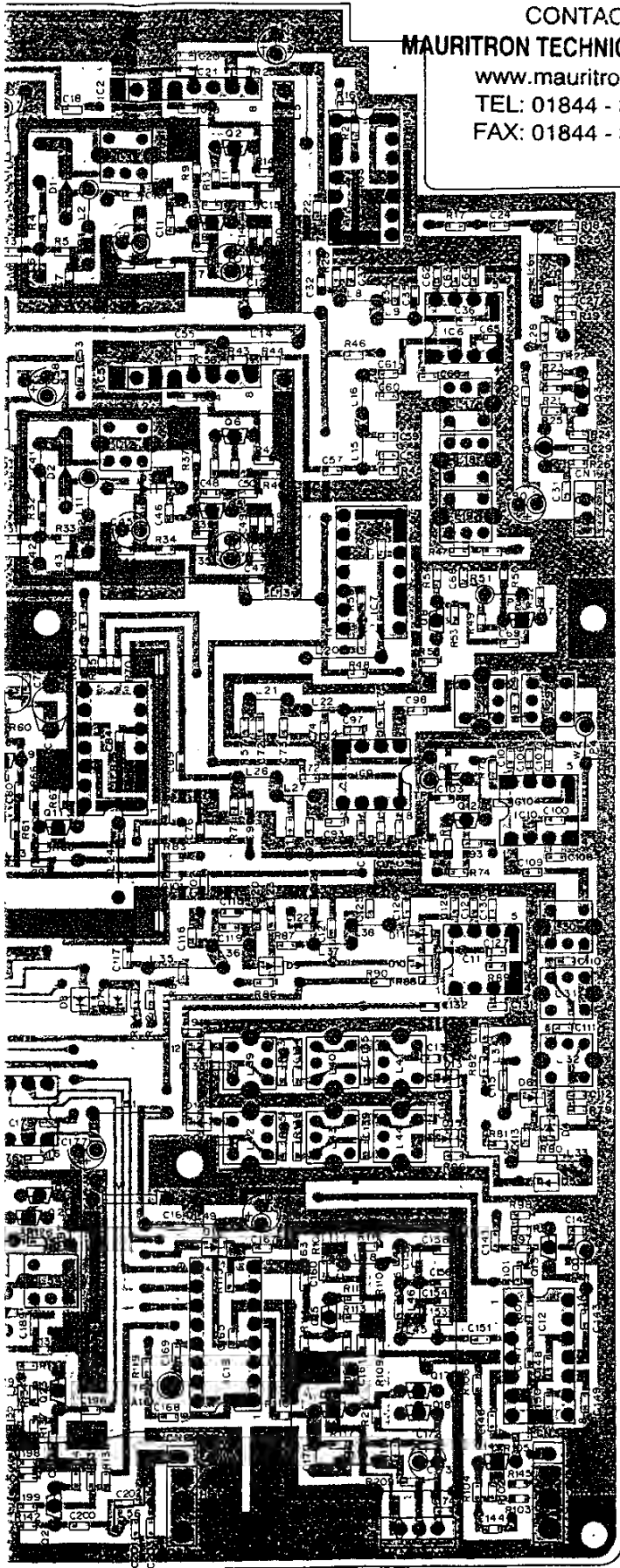
CONTACT:

MAURITRON TECHNICAL SERVICES

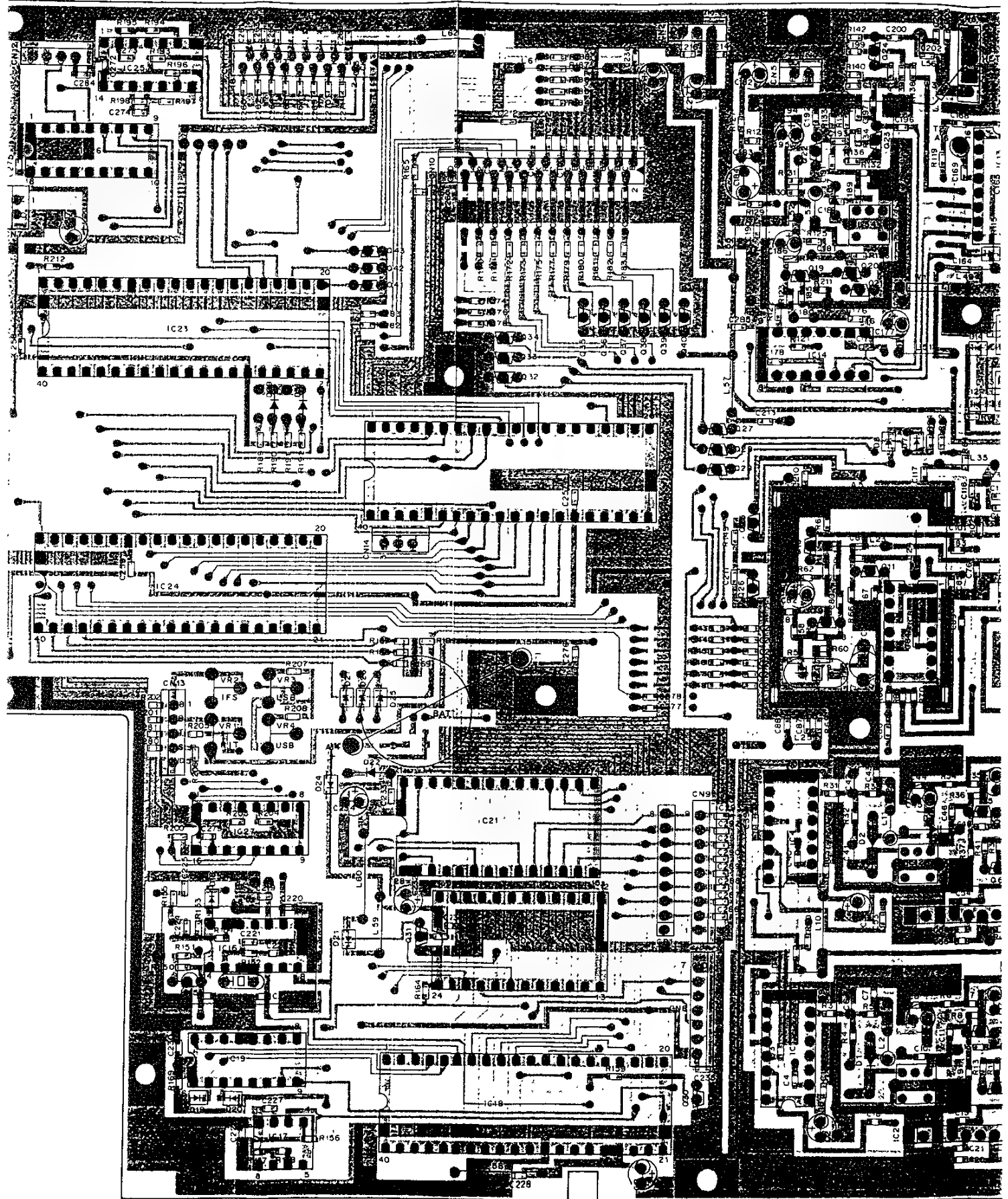
www.mauritron.co.uk

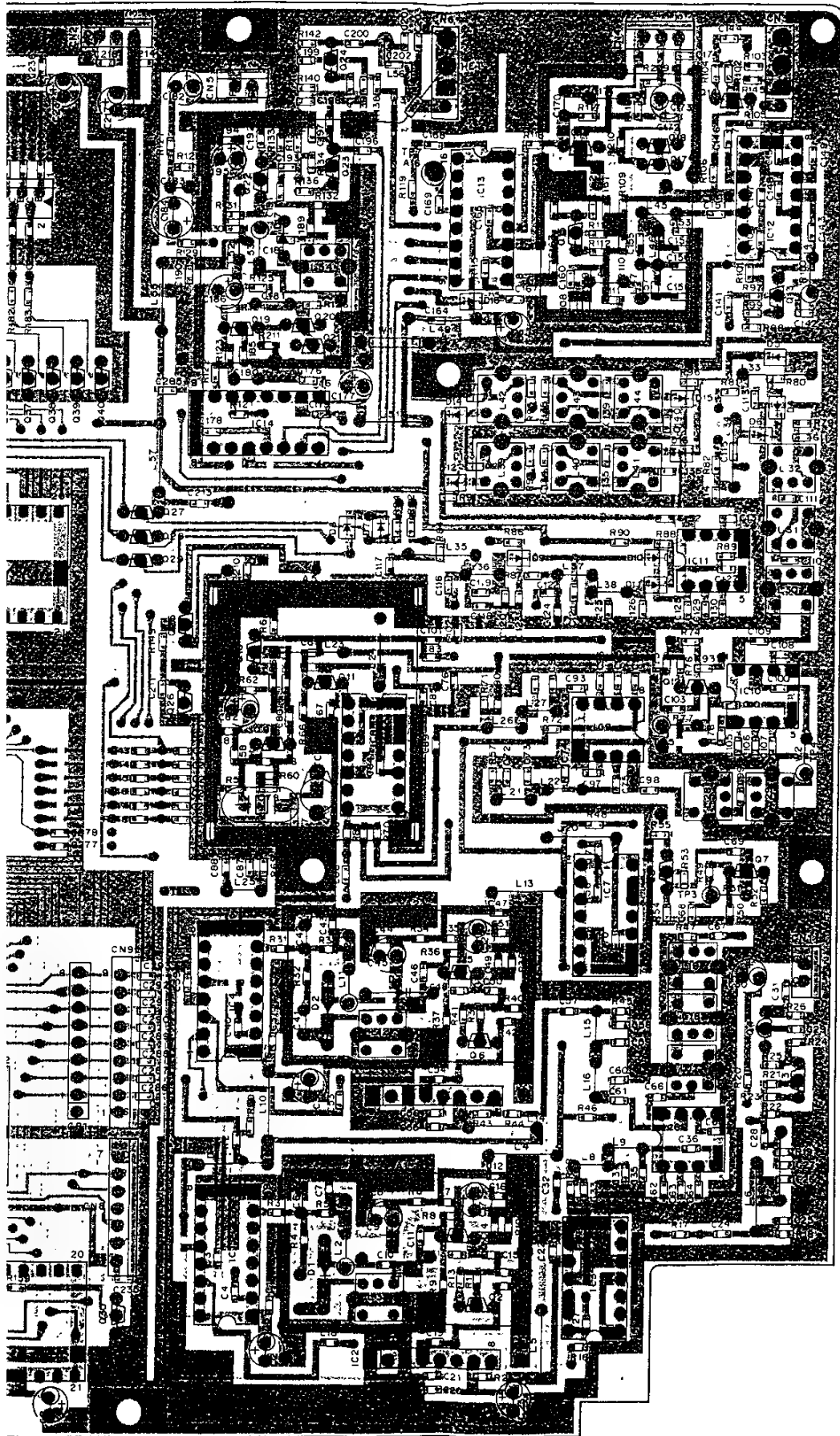
TEL: 01844 - 351694

FAX: 01844 - 352554



CONTROL UNIT (X53-3100-XX) -11: TS-140S -12: TS-680S Foil side view

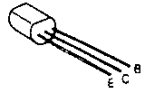




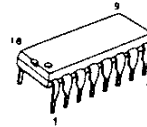
FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

PC BOARD VIEWS TS-140S/680S

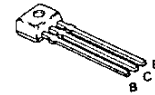
2SC1959(Y)
2SC1971



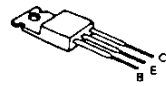
MB87006
MB4052



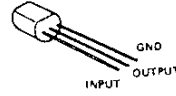
2SC2787(L)



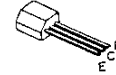
2SC2509



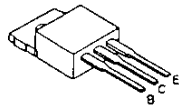
PST520D



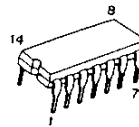
DTC124ES



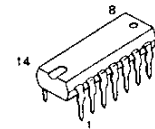
2SD1406(Y)



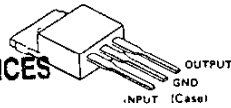
TC4069UBP



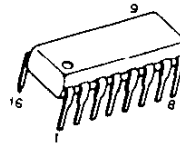
M74LS93P
SN76514N



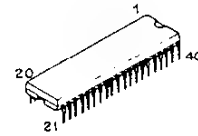
AN7805



SN74LS138N

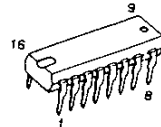


BU18400A

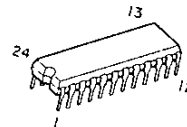


FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

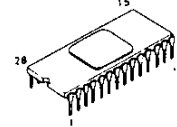
M54927P



TC5518CPL-20



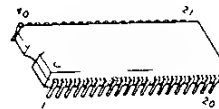
MBM27C128-25JAJ2



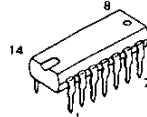
M54459L
M54460L



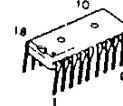
TMP8255AP-5



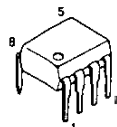
SN74LS90N



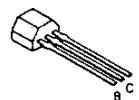
LZ92K37



SN16913P
NE555C



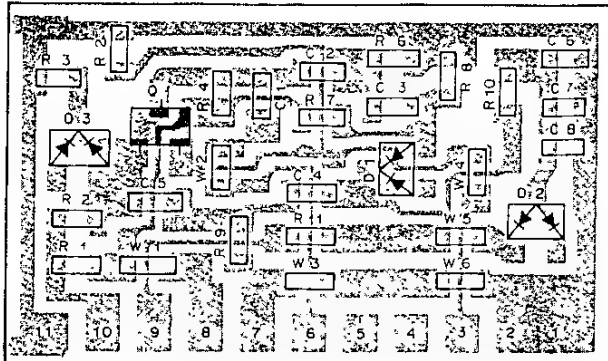
2SC2458(Y) DTA143ES
2SC2459(BL) DTC144WS
2SC2668(Y) DTC143TS
DTA124ES



TS-140S/680S PC BOARD VIEWS (TS-680S)

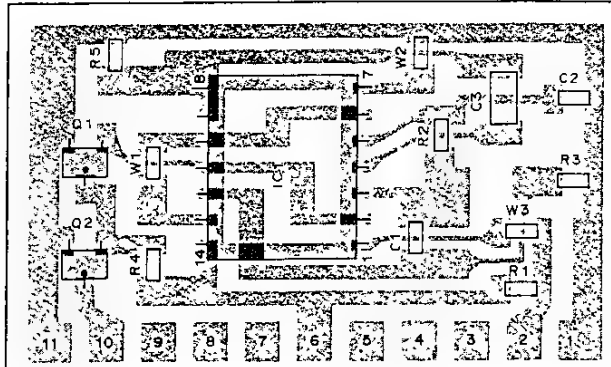
SIDE TONE (X59-1060-00)

Component side view



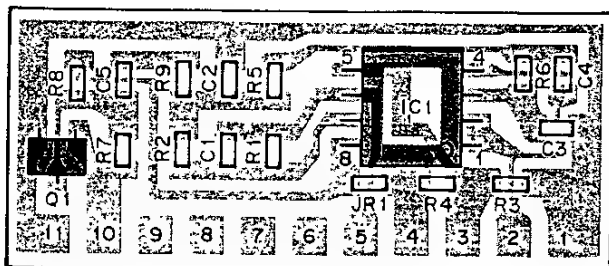
NB2 (X59-3350-00)

Component side view



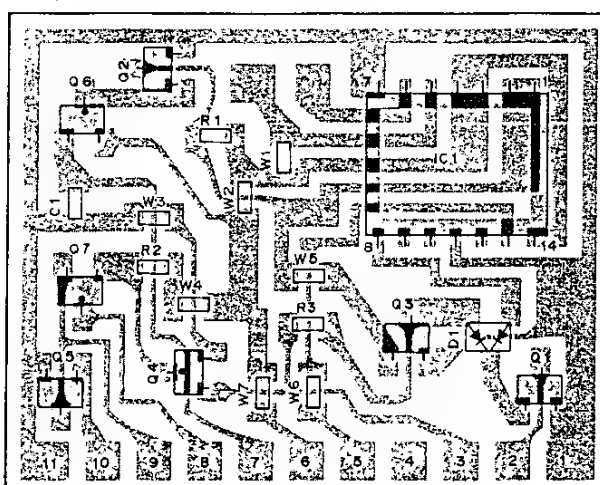
FM MIC AMP. (X59-3000-02)

Component side view



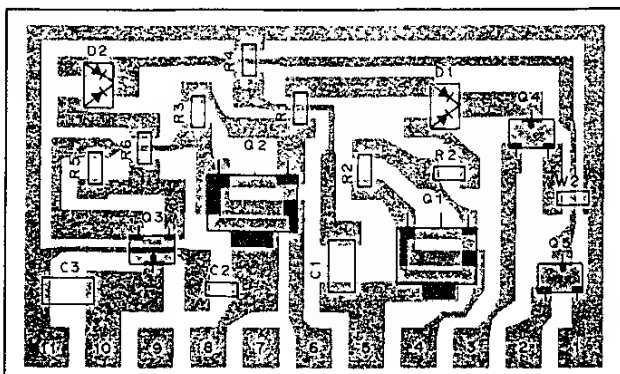
DELAY TIME (X59-3360-00)

Component side view



TRX (X59-3340-00)

Component side view



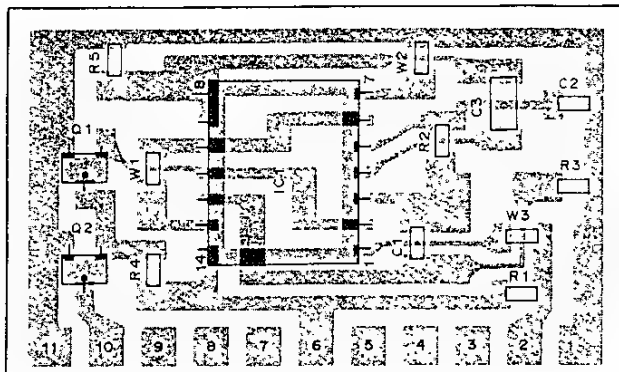
FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

RD VIEWS (TS-680S)

SIGNAL UNIT (X57-3190-00) Component side view

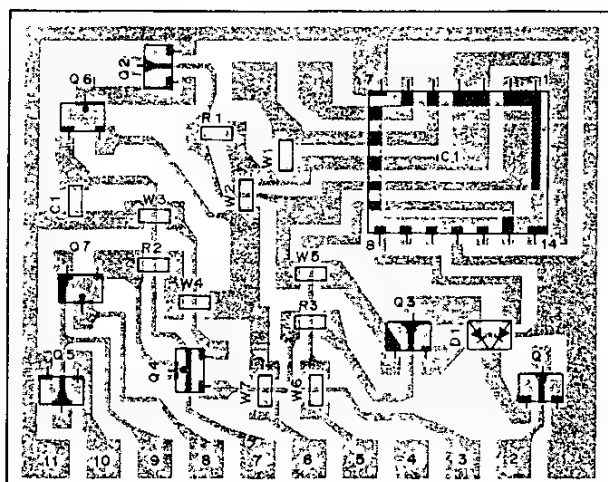
NB2 (X59-3350-00)

Component side view

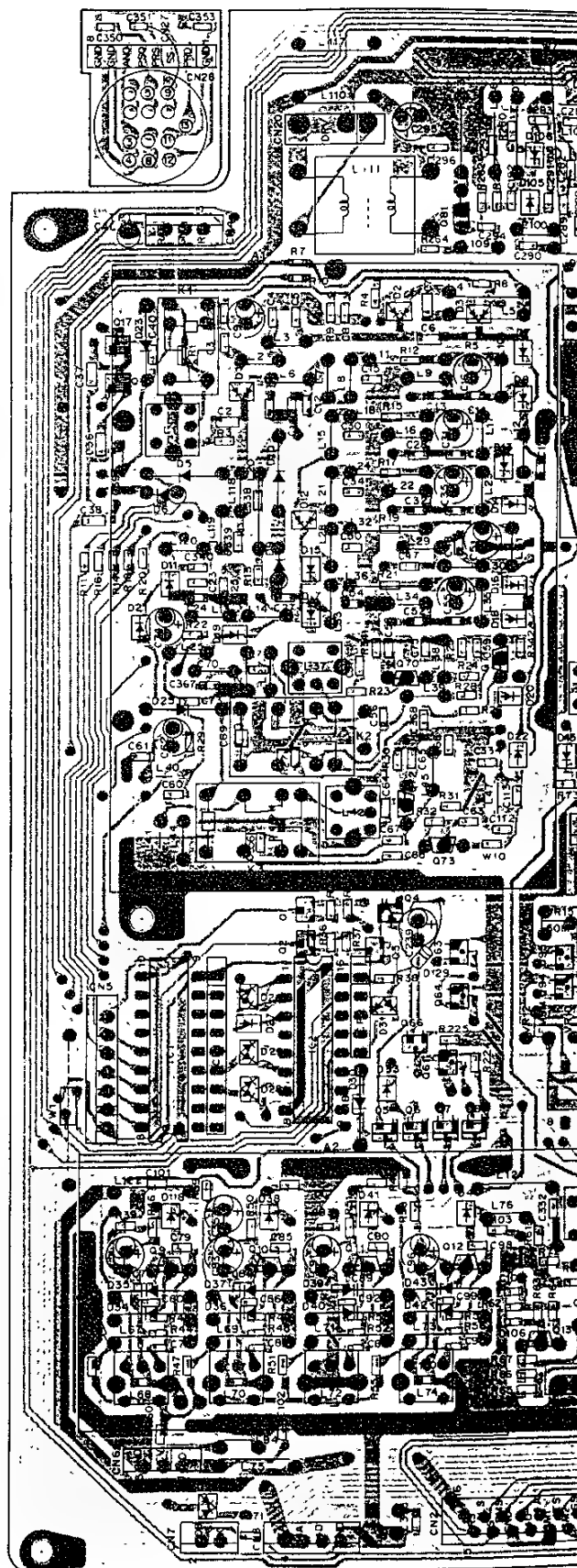


DELAY TIME (X59-3360-00)

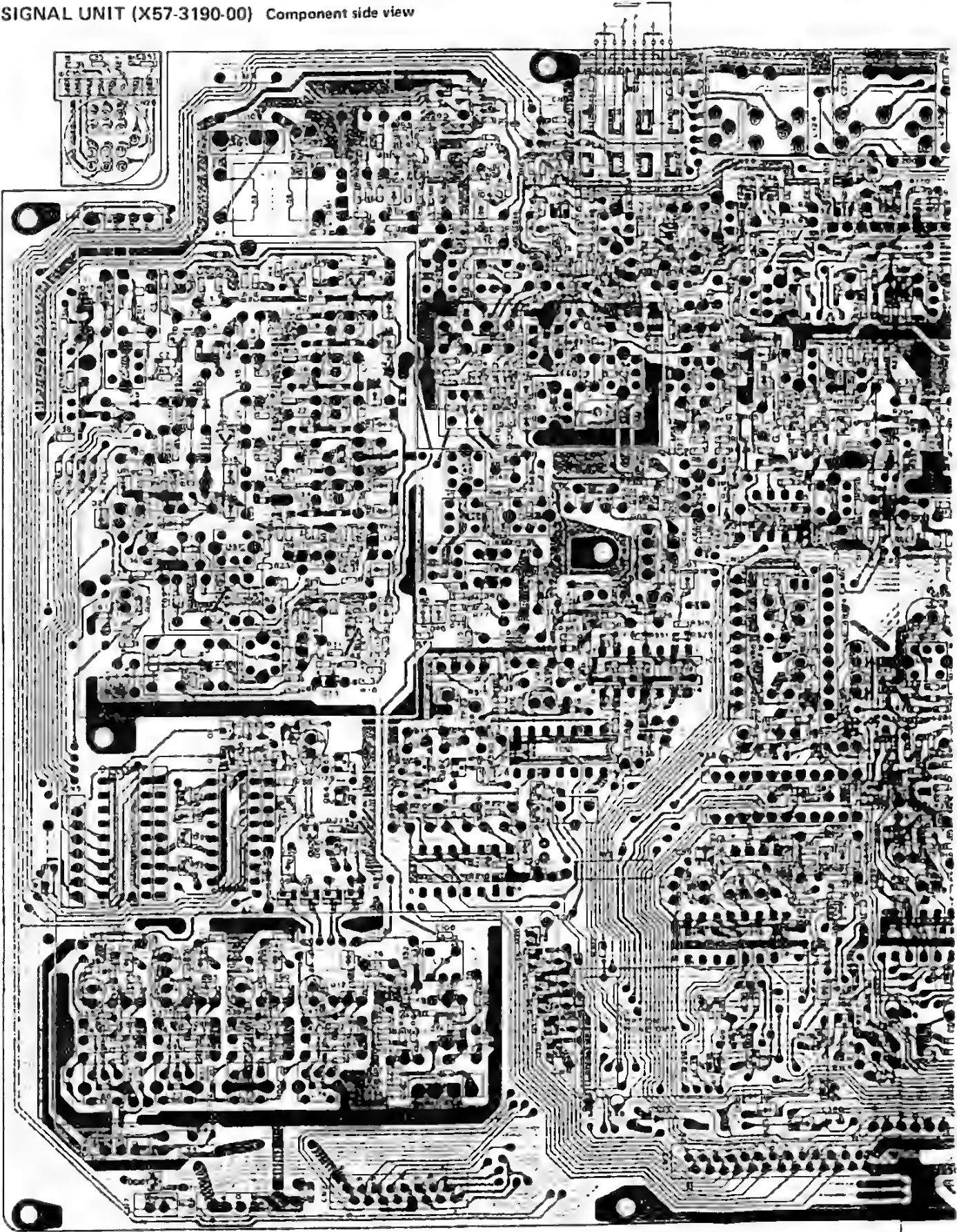
Component side view

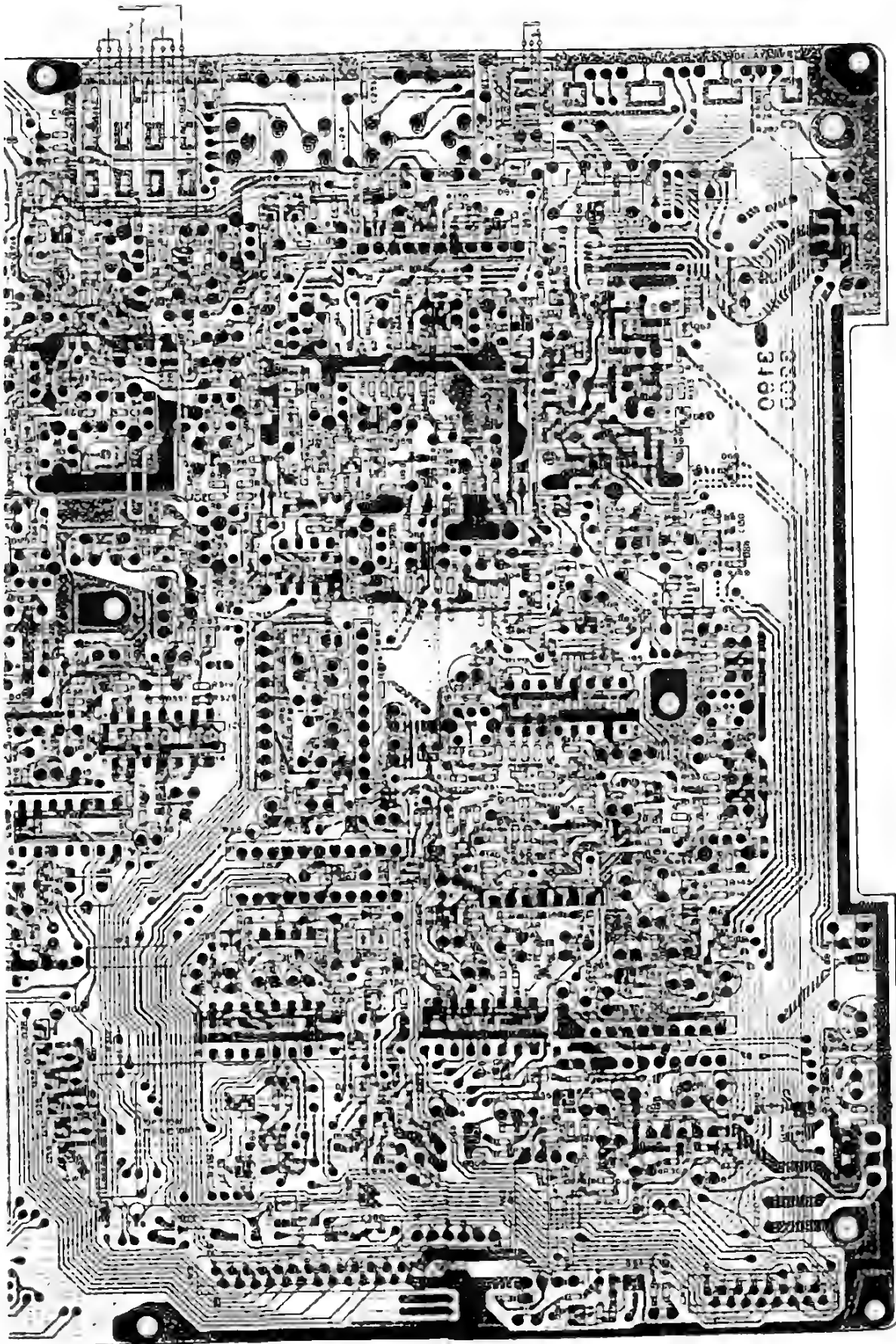


FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

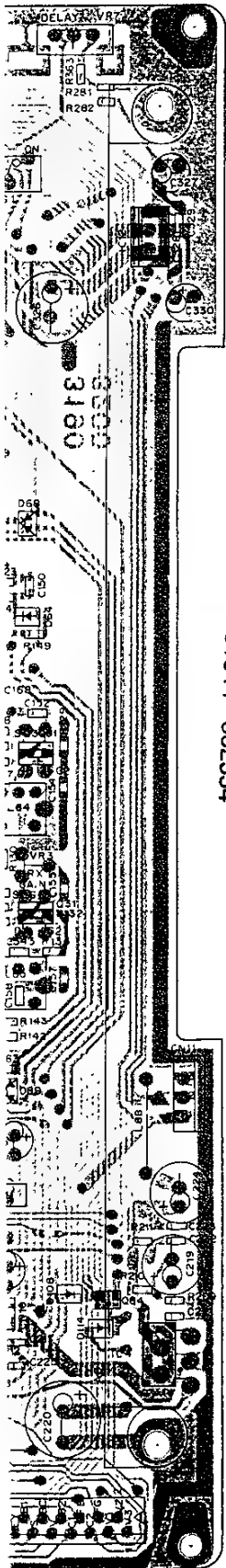
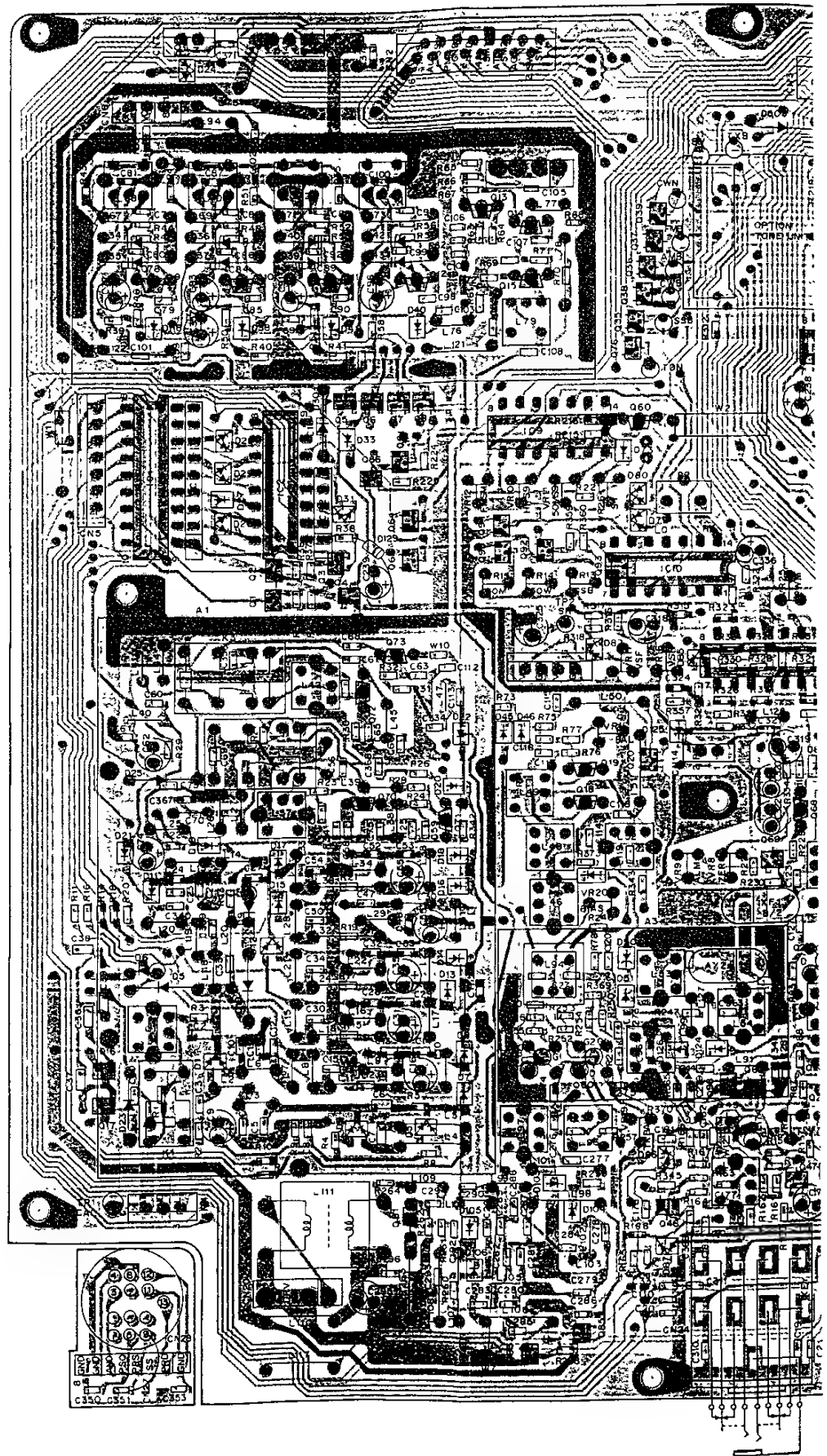


SIGNAL UNIT (X57-3190-00) Component side view





SIGNAL UNIT (X57-3190-00) Foil side view



FOR SERVICE MANUALS

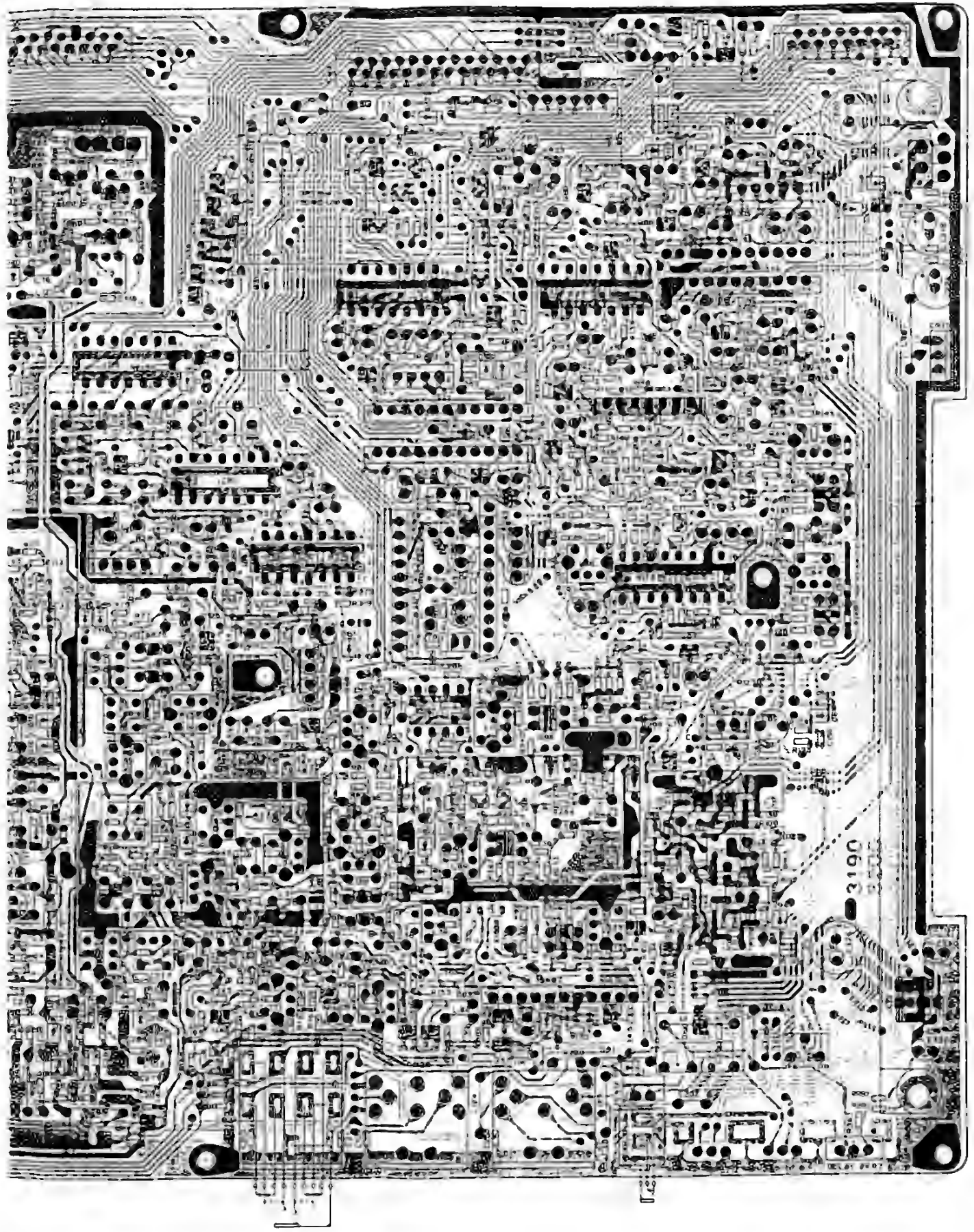
CONTACT:

MAURITRON TECHNICAL SERVICES

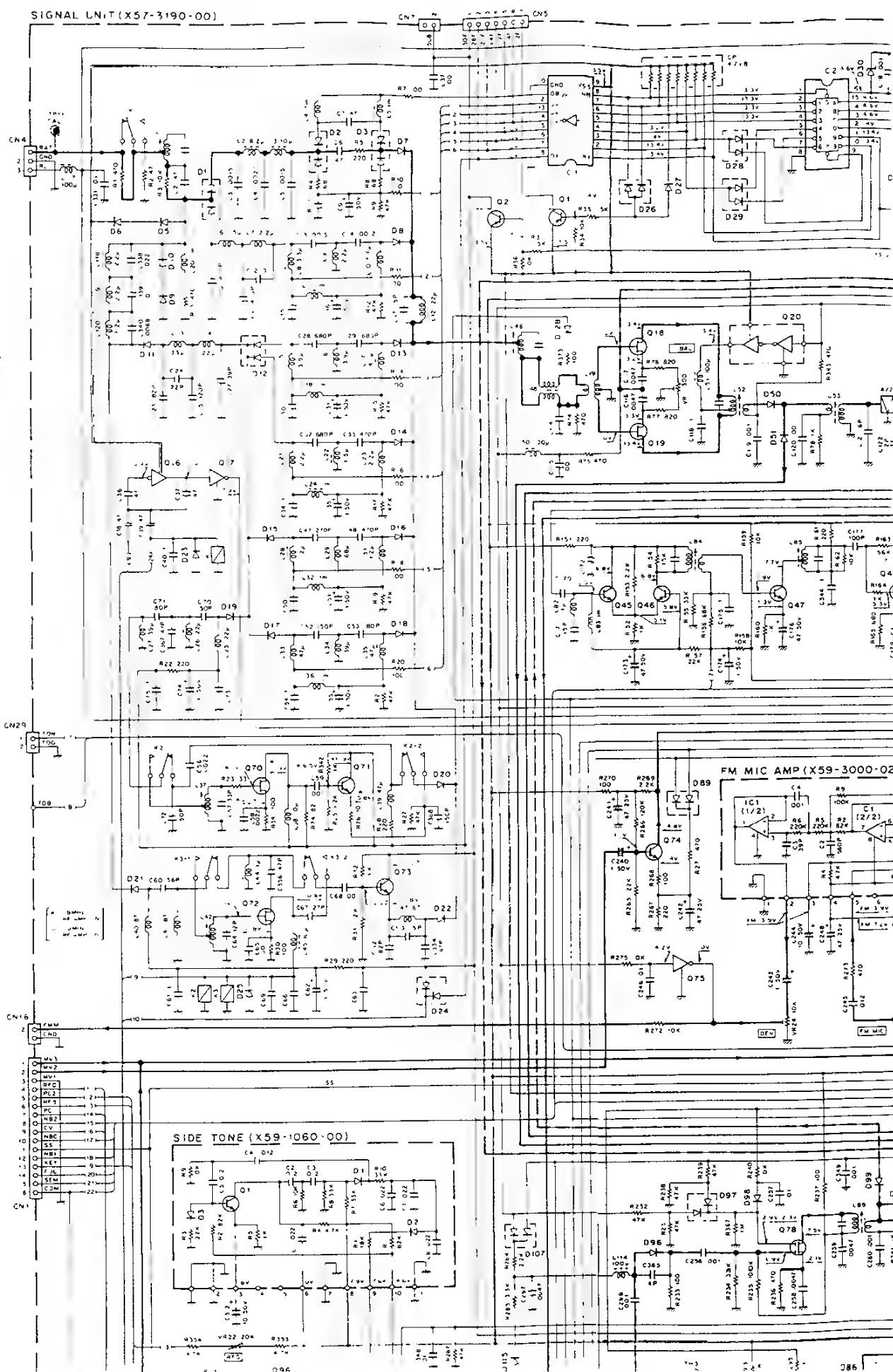
www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

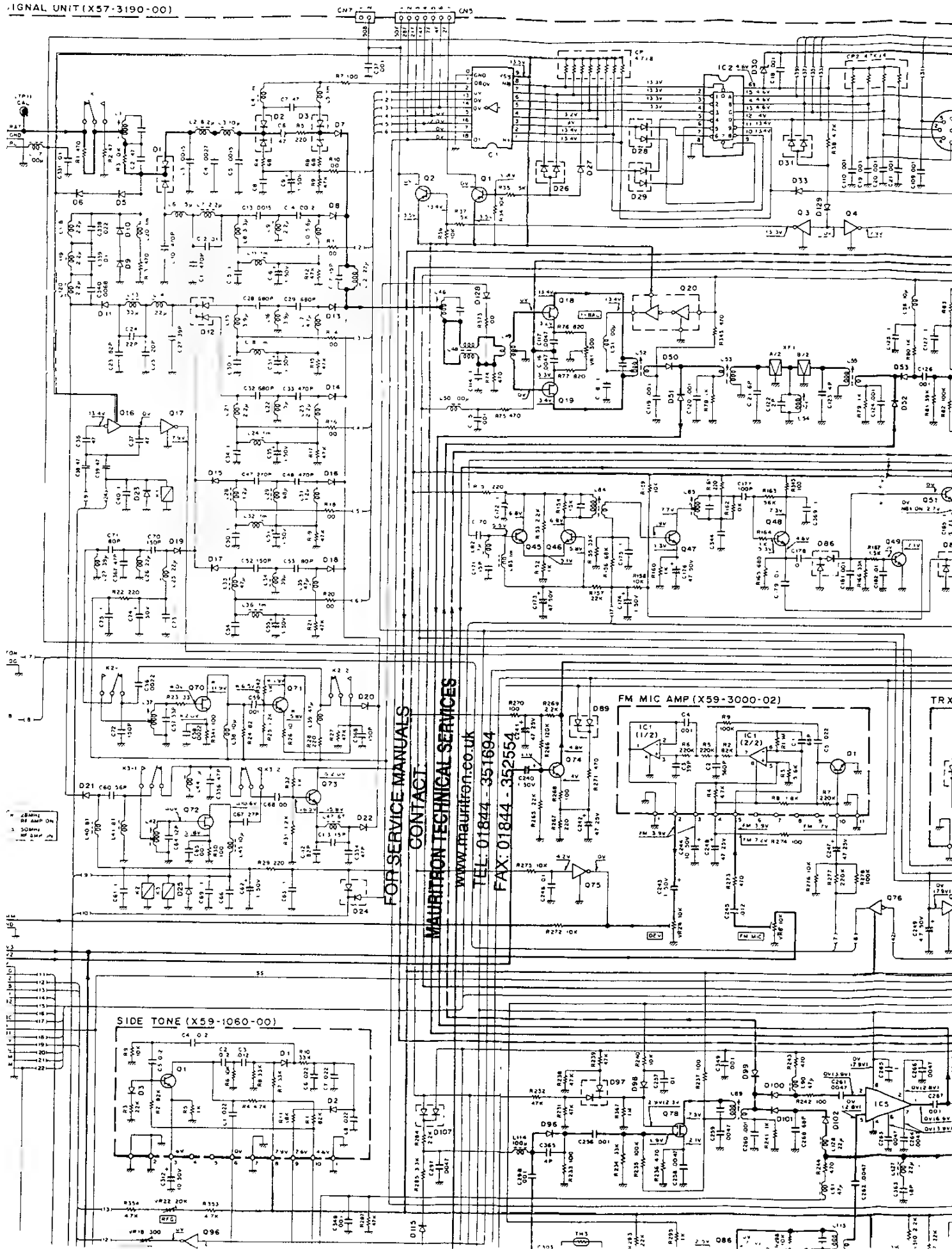


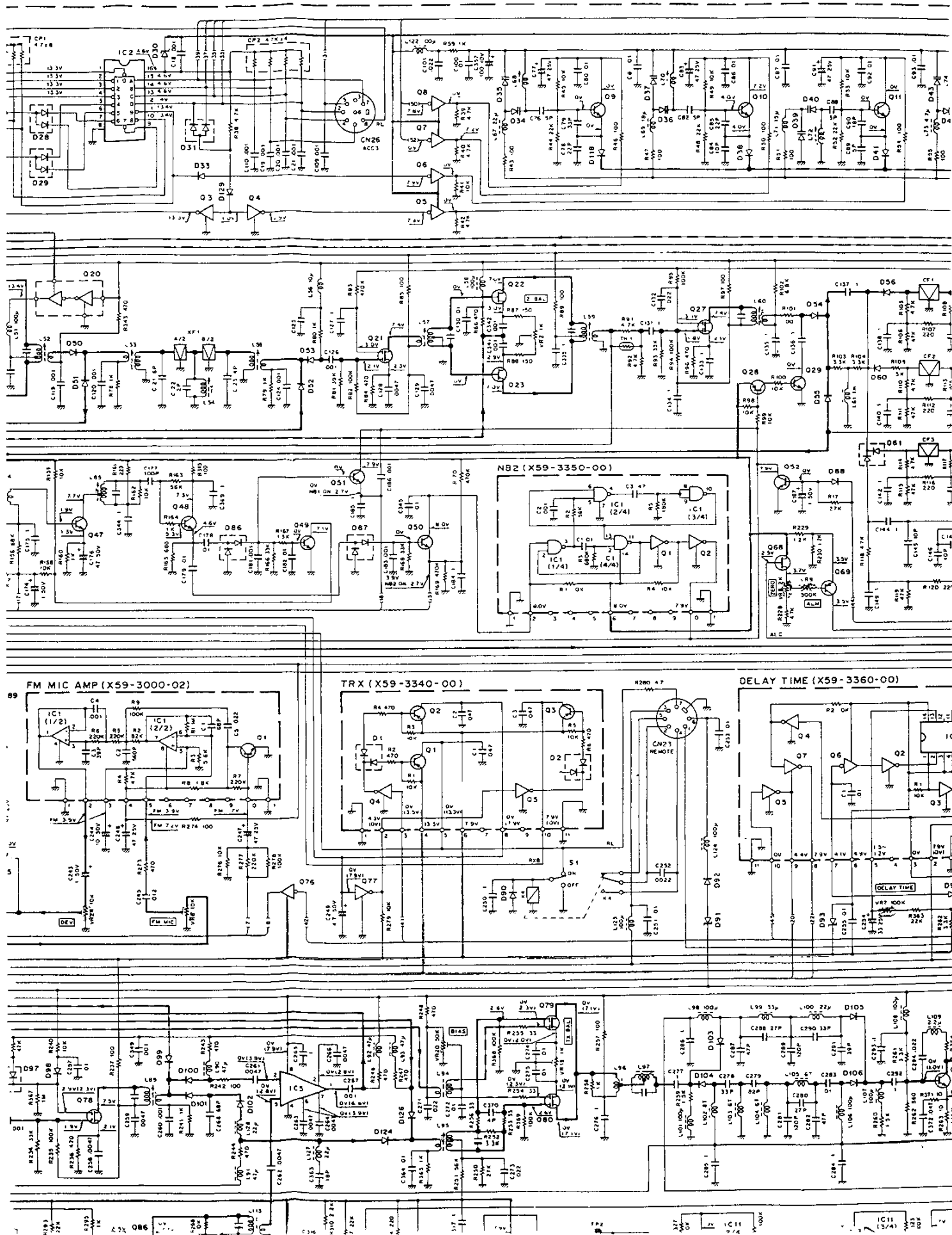
**FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES**
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

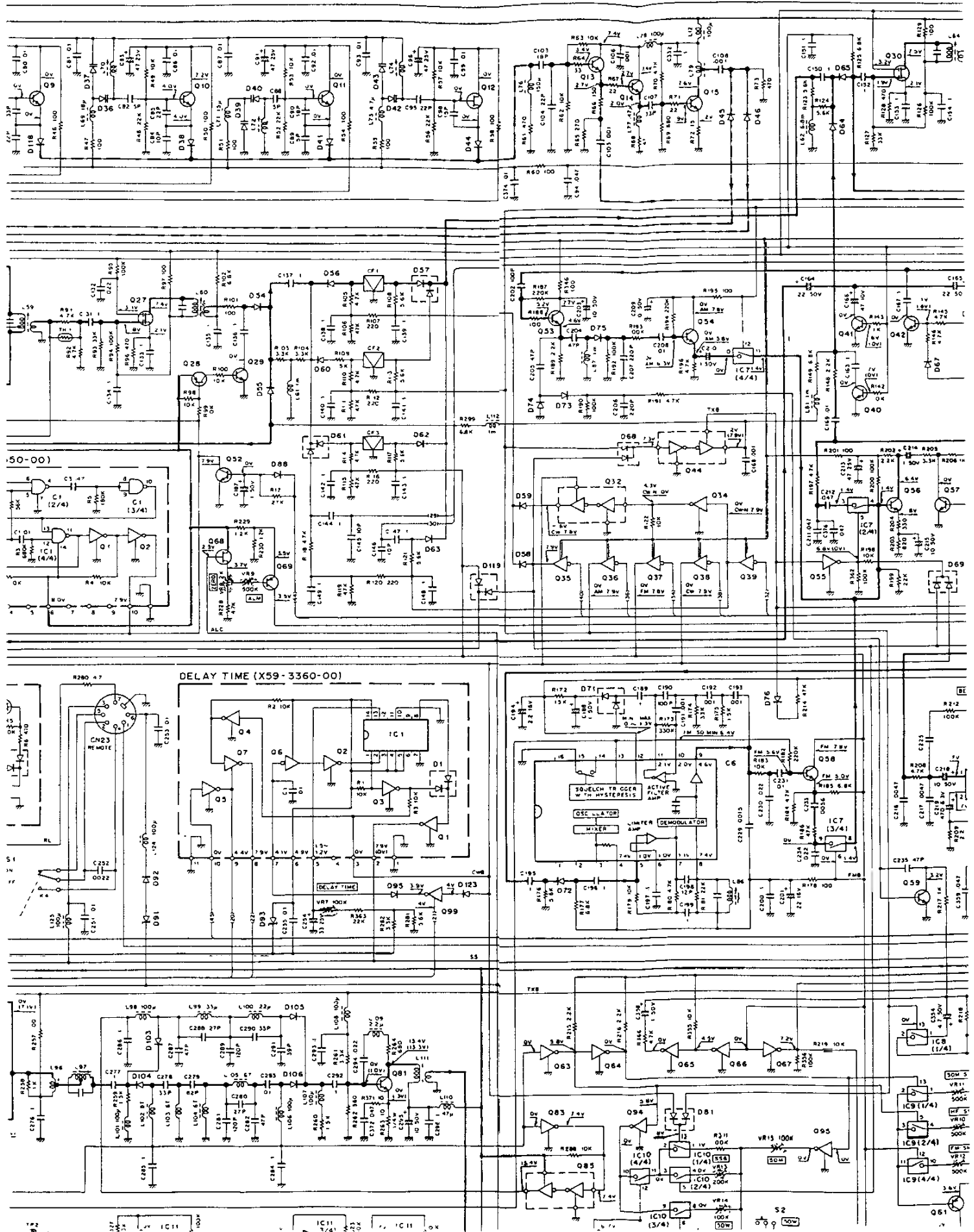


IGNAL UNIT (X57-3190-00)

IGNAL UNIT (X57-3190-00)

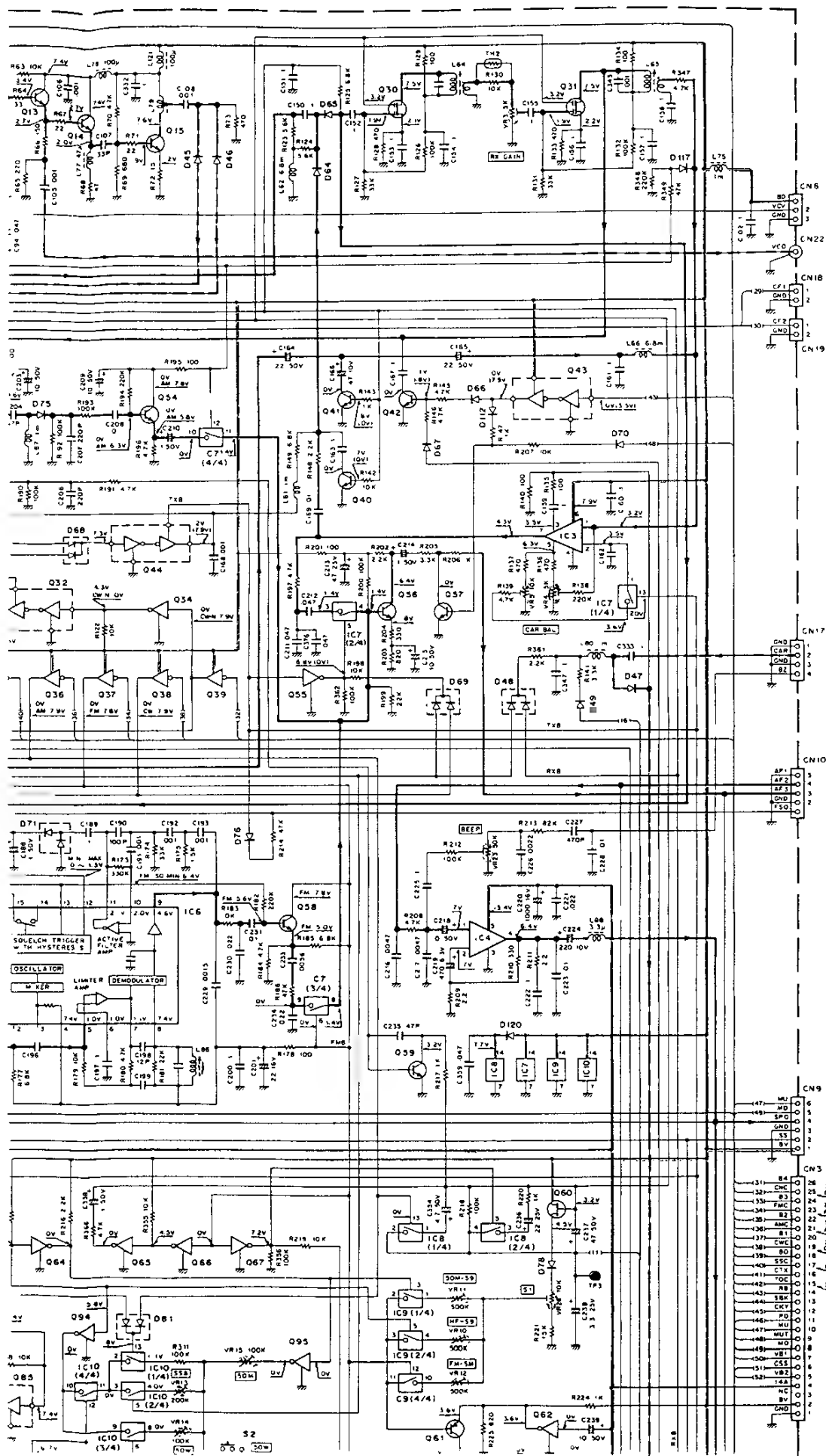






= 14MHz, Mode : USB. () : TX.

CIRCUIT DIAGRAM (TS-680S) TS-140S/680S



FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

(X57-3190-00)
Q1, 2, 28, 61, 69, 87, 90 25A1162(Y)
Q3, 4, 17, 34, 55, 63, 65-67, 75, 77,
83, 84, 91, 92, 96, 97, 99

Q5-8, 35-39, 76 DTC114EK
Q9-11, 13 DTA143EK
Q12 25C2668(Y)
Q14, 71, 73 25K192A(GR)M
Q15, 81 25C190T
Q16 25C2053
Q18, 19, 22, 23, 70, 72 OTA114EK
Q20, 32, 43, 44, 82, 85, 88 25K125-5
Q21, 79, 80 FMC3
Q27, 30, 31, 78, 86 35K122(L)
Q29, 40-42, 45-54, 56-59, 74, 89, 98 35K73(GR)
Q60, 68 25C2712(Y)
Q62, 64, 93-95 25K192A(Y)
DTC114TK

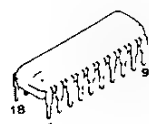
IC1 M54581P
IC2 M74LS145P
IC3 AN612
IC4 JPC2002V
IC5 SN16913P
IC6 MC3357P
IC7-10 TC4066BP
IC11 LM324N
IC12 AN7808

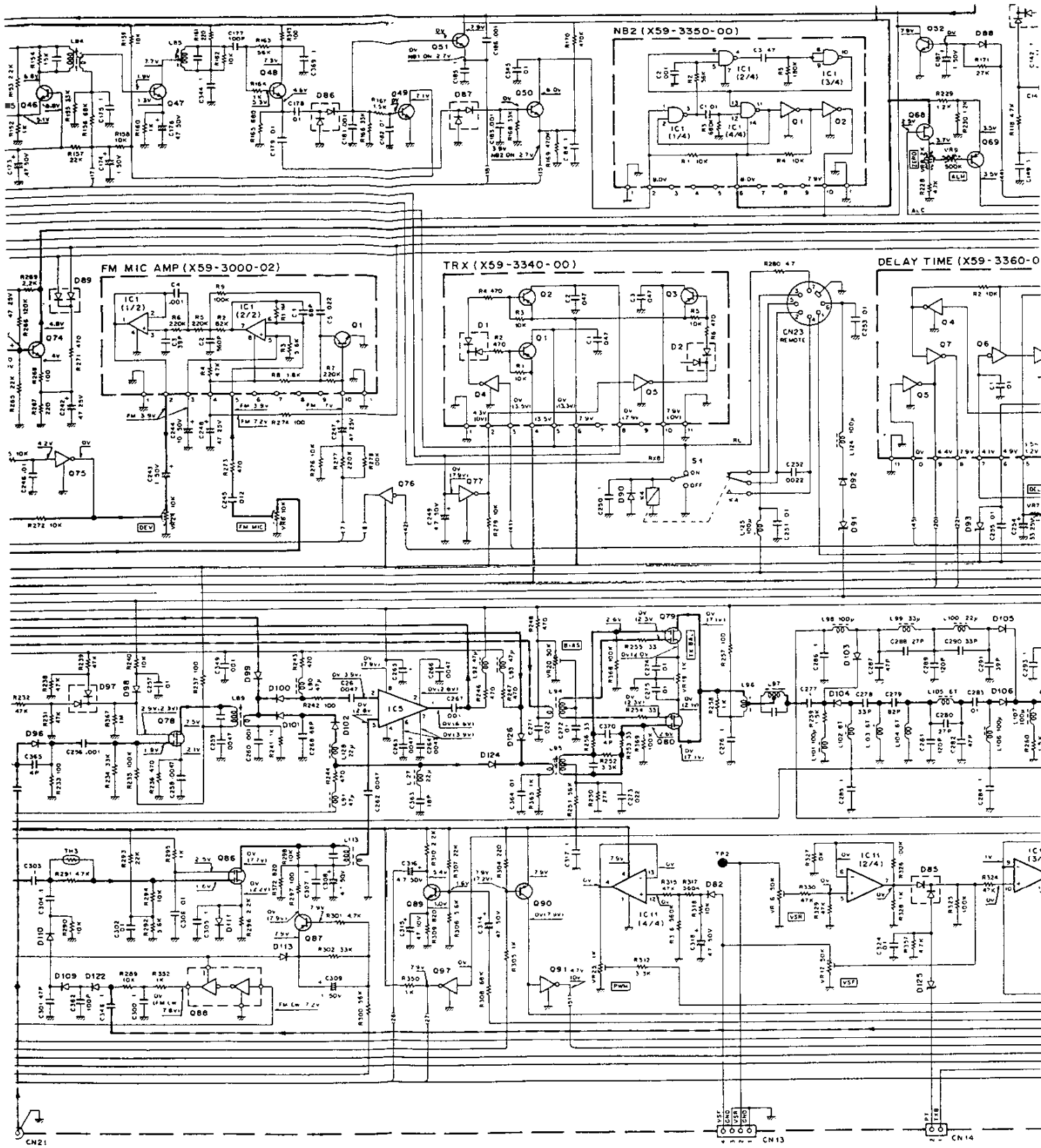
D1-3, 12 DAN235K
D5, 10 U51090
D6, 9 V08(G)
D7, 8, 11, 13-22, 38, 41, 44-46, 50-53, 99-106, 109, 110, 118, 122, 124, 126 RLS135
D23, 25, 90 151555
D24, 48, 57, 61, 68, 69, 77, 79-81, 85, 89, 97, 107, 119

D26, 28, 29, 31 DAN202K
D27, 33, 49, 54-56, 58-60, 62-67, 70, 72-74, 76, 78, 83, 88, 92, 95, 108, 112-115, 117, 120, 123, 128, 129 DAP202K
D30, 93 UZ-308
D34-37, 39, 40, 42, 43 ITT310TE
D47, 96 M1204
D71, 82, 86, 87 HSM88AS
D91 MT291J8
D111 KB-369
D116, 125 RLZ3 68
D75, 98 IN60APSPA
D127 155133
TH1-4 H12-502-2

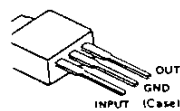
(X59-1060-00)
Q1 25C2712(Y)
D1, 3 DAN202K
D2 DAP202K

(X59-3000-02)
Q1 25C2712(Y)
IC1 NJM4558M

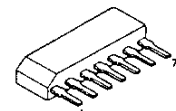




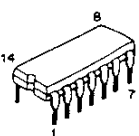
AN7808



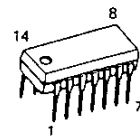
AN612



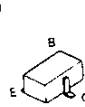
TC4066BP



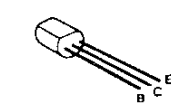
LM324N



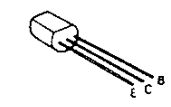
2SA1162(Y)
2SA1182(Y)
2SC2712(Y)
DTA114EK
DTA143EK
DTC114EK
DTC114TK

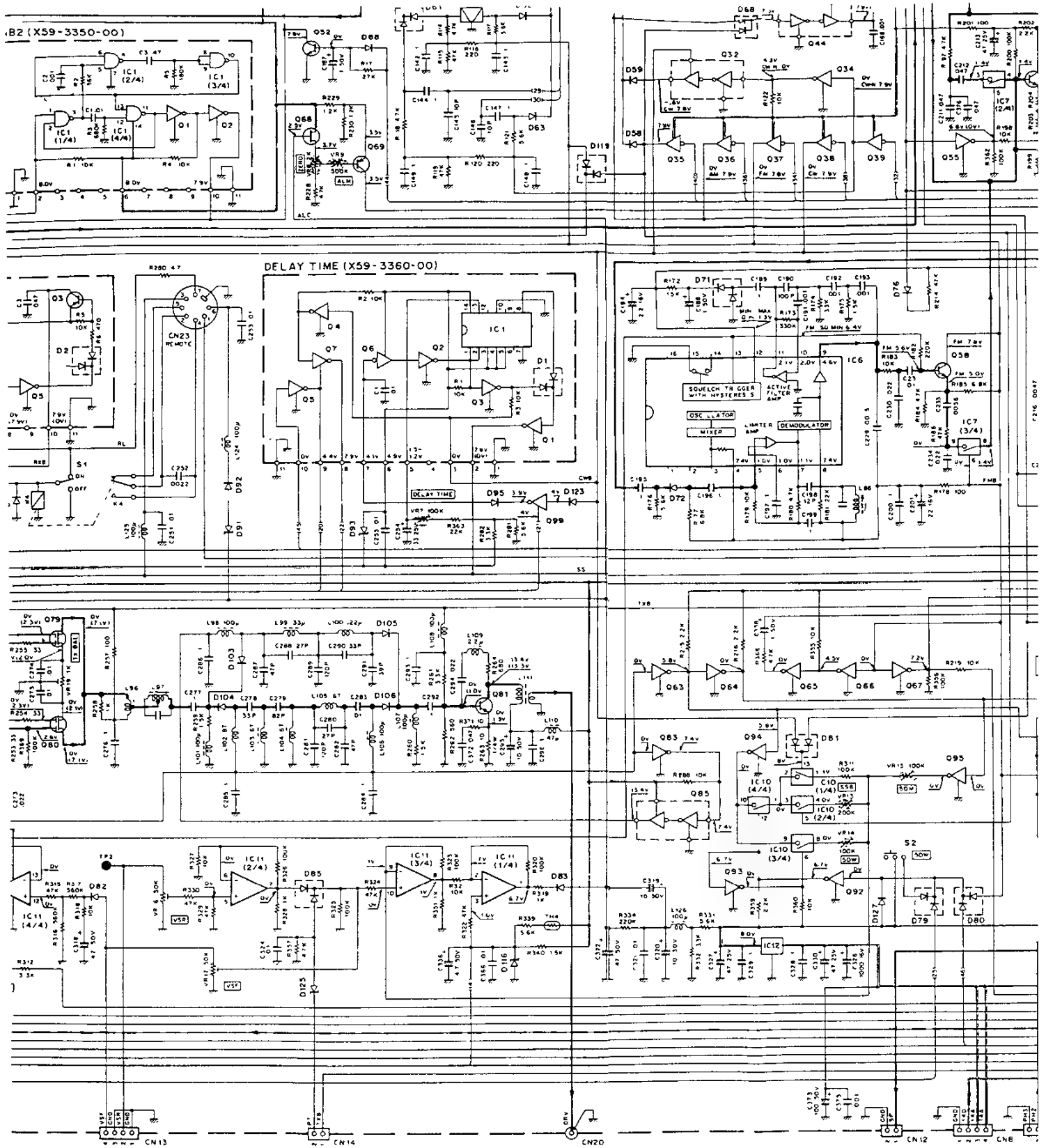


2SC2053



2SC1907

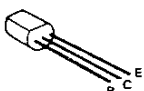




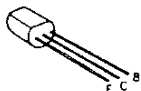
A1162(Y)
A1182(Y)
C2712(Y)
A114EK
A143EK
C114EK
C114TK



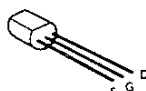
2SC2053



2SC1907



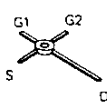
2SK125-5



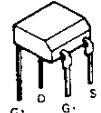
FMC3

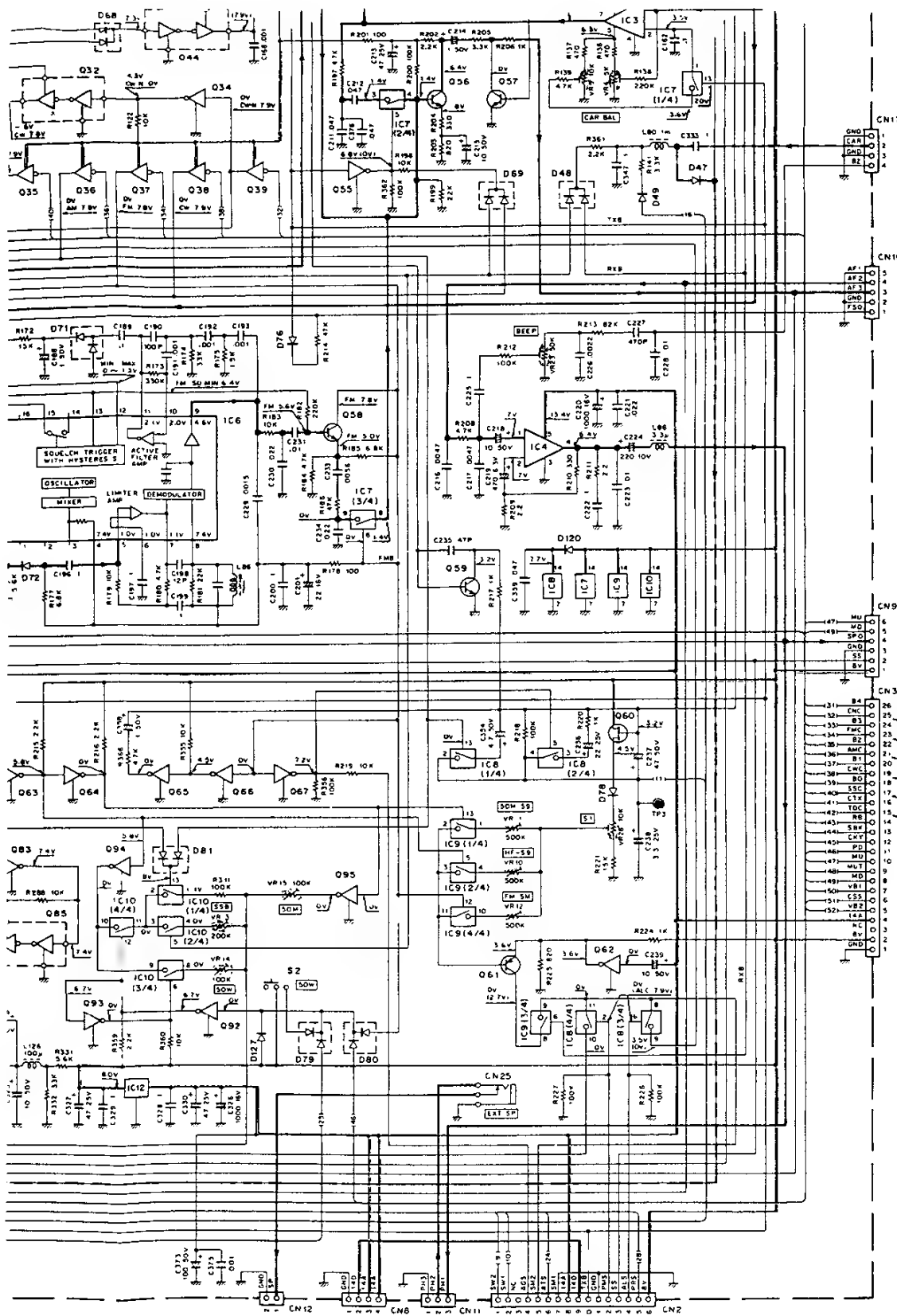


3SK122(L)



3SK73(GR)





- (X57-3190-00)
 Q1,2,28,61,69,87,90 2SA1162(Y)
 Q3,4,17,34,35,63,65-67,75,77,83,84,91,92,96,97,99
 DTC114EK
 DTA143EK
 05-8,35-39,76 2SC2668(Y)
 09-11,13 2SK192A(GR)WJ
 Q12 2SC1907
 Q14,71,73 2SC2053
 Q15,81 2SC2053
 Q16 DTA114EK
 Q18,19,22,23,70,72 2SK125-5
 Q20,32,43,44,82,85,88
 FMC3
 Q21,79,80 3SK122(L)
 Q27,30,31,78,86 3SK73(GR)
 Q29,40-42,45-54,56-59,74,89,98 2SC2712(Y)
 Q60,68 2SK192A(Y)
 Q62,64,93-95 DTC114TK
- IC1 M54581P
 IC2 M74LS145P
 IC3 AN612
 IC4 μ PC2002V
 IC5 SN16913P
 IC6 MC3357P
 IC7-10 TC4066BP
 IC11 LM324N
 IC12 AN7808
- D1-3,12 DAN235K
 D3,10 U51090
 D6,9 V08(G)
 D7,8,11,13-22,38,41,44-46,50-53,59-106,109,110,118,122,124,126 RLS135
 D23,25,90 1S1555
 D24,48,57,61,68,69,77,79-81,85,89,97,107,119 DAN202K
 D26,28,29,31 DAP202K
 D27,33,49,54-56,58-60,62-67,70,72-74,76,78,83,88,92,95,108,112-115,117,120,123,128,129 RLS73
 D30,93 UZ-50B
 D34-37,39,40,42,43 ITT310TE
 D47,96 M1204
 D71,82,86,87 HSM58AS
 D91 MT291J8
 D111 KB-369
 D116,125 RLZ3 68
 D75,98 IN60APSA
 D127 1S5133
 TH1-4 112-502-2
- (X59-1060-00)
 Q1 2SC2712(Y)
 D1,3 DAN202K
 D2 DAP202K
- (X59-3000-02)
 Q1 2SC2712(Y)
 IC1 NJM4558M
- (X59-3340-00)
 Q1,2 2SA1204(Y)
 Q3 2SA1162(Y)
 Q4,5 DTC114EK
 D1,2 DAN202(K)
- (X59-3350-00)
 Q1,2 DTC114EK
 IC1 TC4011BF
- (X59-3360-00)
 Q1-5 DTC114EK
 Q6 DTA114EK
 Q7 DTC114TK
 D1 DAN202(K)
 IC1 MB74LS122

3SK122(L)

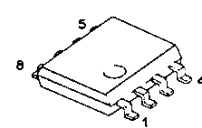
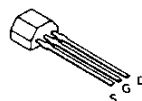
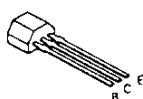
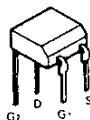
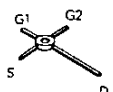
3SK73(GR)

2SC2668(Y)

2SK192A(Y)
 2SK192A(GR)-J

NJM4558M

2SA1204(Y)



TERMINAL FUNCTION

Connector No.	Terminal No.	Terminal Name	Terminal Function
SWITCH UNIT (X41-3030-XX)			
CN1	1	GND	GND
	2	PPD	Packet power down
	3	RXB	RX power supply (+8V)
	4	PRS	Processor switch
	5	NC	Not connected
	6	MV3	Mic amp output
CN2	1	SS	Standby switch
	2	8V	+8V
CN3	1	SS	Standby switch
	2	PKS	Packet standby
	3	GND	GND
	4	PDK	Packet data input
CN4 (TS-140S)	1	GND	GND
	2	VOX	VOX
CN5	1	MIC	Mic amp input
	2	GND	GND
	3	8M	+8V (Mic)
	4	SS	Standby switch
CN6	1	AF1	AF GAIN GND
	2	AF2	AF GAIN volume
	3	AF3	AF GAIN input
	4	GND	GND
	5	FSQ	Squeal volume
	6	NC	Not connected
CN7	1	GND	GND
	2	RIT	RIT data
	3	RIB	RIT volume
	4	IFS	IF shift data
	5	IFB	IF shift volume
CN8	1	PH2	Phone output
	2	PH1	Phone input
	3	PH3	Phone GND
100W FINAL UNIT (X45-3100-XX)			
CN1	1	TXB	TX power supply (+8V)
	2	50B (NC)	50MHz power supply (TS-680S, Not connected (TS-140S))
	3	PT	Temperature protection signal
CN2	1	GND	GND
	2	14D	+14V (DC-DC converter)
	3	14A	+14V
	4	14A	+14V
CN3	1	5A	+5V (PLL)
	2	5B	+5V (Microprocessor)
	3	GND	GND
CN4 (TS-680S)	1	50T	50MHz TX power supply (+8V)
	2	14S	+14V
	3	14S	+14V
CN5	1	MOT +	Fun motor power supply +
	2	MOT -	Fun motor power supply -
		DRV	Drive input
		GND	GND
		PO	Power output
		GND	GND
(TS-680S)		50D	50MHz drive output
		GND	GND
		14S	+14V
		14	+14V
		GND	GND

Connector No.	Terminal No.	Terminal Name	Terminal Function
FILTER UNIT (X51-3040-XX)			
CN1	1	RL	Relay power supply (TX 1)
	2	RAT	RX antenna output
	3	GND	GND
CN2 (TS-680S)	1	50T	50MHz TX power supply
	2	14S	+14V
	3	14S	+14V
CN3	1	50F (NC)	50 ~ 54MHz (TS-680S) Not connected (TS-140S)
	2	14F	7.5 ~ 14.5MHz
	3	28F	21.5 ~ 30MHz
	4	7F	4 ~ 7.5MHz
	5	21F	14.5 ~ 21.5MHz
	6	4F	2.5 ~ 4MHz
	7	2F	~ 2.5MHz
CN4	1	VSF	Forward wave voltage
	2	GND	GND
	3	VSR	Reflected wave voltage
	4	GND	GND
CN5		PO	Power input
		GND	GND
CN6 (TS-680S)		50D	50MHz drive input
		GND	GND
		ANT	Antenna
		GND	GND
CONTROL UNIT (X53-3100-XX)			
CN1	1	CAR	Carrier output (455kHz)
	2	GND	GND
CN2	1	5A	+5V (PLL)
	2	5B	+5V (Microprocessor)
	3	GND	GND
CN3		VCO	VCO input
		GND	GND
CN4	1	GND	GND
	2	VCV	VCO control voltage
	3	8D	+8V (Active low pass filter)
CN5	1	FMM	FM modulation signal input
	2	GND	GND
CN6		HET	Heterodyne output
		GND	GND
CN7	1	BZ	Beep sound output
	2	NC	Not connected
CN8	1	5B	+5V (Interface)
	2	RDY	Ready
	3	CD	Control data
	4	CS	Chip select
	5	RD	Read enable
	6	WR	Write enable
	7	GND	GND
CN9	1	RES	Reset
	2	D0	Microprocessor data bus 0 ~ 7
	3	D1	
	4	D2	
	5	D3	
	6	D4	
	7	D5	
	8	D6	
	9	D7	

TERMINAL FUNCTION

Terminal Function
3030-XX)
Power down
Power supply (+8V)
Power switch
Reflected
Output
Switch
Power switch
Antenna
Input
Input
Switch
V GND
V volume
V input
Volume
Reflected
me
data
Volume
Input
Output
VD
5-3100-XX)
Power supply (+8V)
Power supply (TS 680S)
Reflected (TS 140S)
Feature protection signal
C-DC converter)
L)
Microprocessor)
X power supply (+8V)
Power supply +
Power supply -
ut
Input
Drive output

Connector No.	Terminal No.	Terminal Name	Terminal Function
FILTER UNIT (X51-3040-XX)			
CN1	1	RL	Relay power supply (TX 13V)
	2	RAT	RX antenna output
	3	GND	GND
CN2 (TS 680S)	1	50T	50MHz TX power supply
	2	14S	+14V
	3	14S	+14V
CN3	1	50F (NC)	50 ~ 54MHz (TS-680S)
			Not connected (TS 140S)
	2	14F	7.5 ~ 14.5MHz
	3	28F	21.5 ~ 30MHz
	4	7F	4 ~ 7.5MHz
	5	21F	14.5 ~ 21.5MHz
	6	4F	2.5 ~ 4MHz
	7	2F	~ 2.5MHz
CN4	1	VSF	Forward wave voltage
	2	GND	GND
	3	VSR	Reflected wave voltage
	4	GND	GND
CN5		PO	Power input
		GND	GND
CN6 (TS-680S)		50D	50MHz drive input
		GND	GND
		ANT	Antenna
		GND	GND
CONTROL UNIT (X53-3100-XX)			
CN1	1	CAR	Carrier output (455kHz)
	2	GND	GND
CN2	1	5A	+5V (PLL)
	2	5B	+5V (Microprocessor)
	3	GND	GND
CN3		VCO	VCO input
		GND	GND
CN4	1	GND	GND
	2	VCV	VCO control voltage
	3	8D	+8V (Active low-pass filter)
CN5	1	FMM	FM modulation signal input
	2	GND	GND
CN6		HET	Heterodyne output
		GND	GND
CN7	1	BZ	Beep sound output
	2	NC	Not connected
CN8	1	5B	+5V (Interface)
	2	RDY	Ready
	3	CD	Control data
	4	CS	Chip select
	5	RD	Read enable
	6	WR	Write enable
	7	GND	GND
CN9	1	RES	Reset
	2	D0	
	3	D1	
	4	D2	
	5	D3	
	6	D4	
	7	D5	
	8	D6	
	9	D7	

Connector No.	Terminal No.	Terminal Name	Terminal Function
CN10	1	B4	Band data
	2	CNC	CW narrow mode
	3	B3	Band data
	4	FMC	FM mode data
	5	B2	Band data
	6	AMC	AM mode data
	7	B1	Band data
	8	CWC	CW mode data
	9	B0	Band data
	10	SSC	SSB mode data
	11	CTX	Transmit timing
	12	TOC	Sub-tone control
	13	RB	Receive timing
	14	SBK	Blanking signal
	15	CKY	Keying control
	16	PD	Power down signal
	17	ML	Mic up data
	18	MUT	Mute signal
	19	MD	Mic down data
	20	VB1	VCO switching
	21	CSS	Standby control
	22	VB2	VCO switching
	23	14A	+14V
	24	NC	Not connected
	25	8V	+8V
	26	GND	GND
CN11	1	CK4	Sub-encoder pulse
	2	CK3	Sub-encoder pulse
	3	5C	+5V (Display)
	4	L1	LED (1MHz)
	5	K0	Key scan input
	6	LF	LED (IF LOCK)
	7	K1	Key scan input
	8	LM	LED (IM SCR)
	9	K2	Key scan input
	10	XP	Display function
	11	K3	Key scan input
	12	SLH	Display serial data
	13	S0	Key scan output
	14	SDA	Display serial data
	15	S1	Key scan output
	16	SCK	Display serial clock
	17	S2	Key scan output
	18	S3	Key scan output
CN12	1	GND	GND
	2	CK2	Main encoder pulse
	3	CK1	Main encoder pulse
	4	5B	+5V (Main encoder)
CN13	1	IFB	IF shift volume
	2	RIB	RIT volume
	3	RIT	RIT data
	4	IFS	IF shift data
	5	GND	GND
CN14	1	HFL	HF low
	2	HFH	HF high
	3	50M	50MHz
		CAL	

TERMINAL FUNCTION

Connector No.	Terminal No.	Terminal Name	Terminal Function
CN10	1	B4	Band data
	2	CNC	CW narrow mode data
	3	B3	Band data
	4	FMC	FM mode data
	5	B2	Band data
	6	AMC	AM mode data
	7	B1	Band data
	8	CWC	CW mode data
	9	B0	Band data
	10	SSC	SSB mode data
	11	CTX	Transmitting control signal
	12	TOC	Sub tone control signal
	13	RB	Receive timing control signal
	14	SBK	Blanking signal
	15	CKY	Keying control signal
	16	PD	Power down signal
	17	ML	Mic up data
	18	MUT	Mute signal
	19	MD	Mic down data
	20	VB1	VCO switching signal
	21	CSS	Standby control data
	22	VB2	VCO switching signal
	23	14A	+14V
	24	NC	Not connected
	25	8V	+8V
	26	GND	GND
CN11	1	CK4	Sub encoder pulse input
	2	CK3	Sub encoder pulse input
	3	5C	+5V (Display)
	4	L1	LED (1MHz)
	5	K0	Key scan input
	6	LF	LED (F LOCK)
	7	K1	Key scan input
	8	LM	LED (M SCR)
	9	K2	Key scan input
	10	XP	Display function signal
	11	K3	Key scan input
	12	SLH	Display serial data (Latch signal)
	13	S0	Key scan output
	14	SDA	Display serial data
	15	S1	Key scan output
	16	SCK	Display serial clock
	17	S2	Key scan output
	18	S3	Key scan output
CN12	1	GND	GND
	2	CK2	Main encoder pulse input
	3	CK1	Main encoder pulse input
	4	5B	+5V (Main encoder)
CN13	1	IFB	IF shift volume
	2	RIB	RIT volume
	3	RIT	RIT data
	4	IFS	IF shift data
	5	GND	GND
CN14	1	HFL	HF low
	2	HFH	HF high
	3	50M	50MHz
		CAL	Antenna select signal

Connector No.	Terminal No.	Terminal Name	Terminal Function
DISPLAY UNIT (X54-3050-XX)			
CN1	1	SM1	S meter -
	2	SM2	S meter +
CN2	1	8V	+8V
	2	PRS	Processor switch
	3	ALS	ALC meter switch
	4	SS	Standby switch
	5	PMS	Power meter switch
	6	GND	GND
	7	TXB	TX power supply (+8V)
	8	14D	+14V (DC-DC converter)
	9	14A	+14V
	10	SM1	S meter -
	11	ATS	RF ATT switch
	12	SM2	S meter +
	13	AGS	AGC switch
	14	NC	Not connected
	15	SW1	RF amplifier signal (TS-680S)
	16	SW2	VOX signal (TS-140S)
CN3	1	COM	Break in input
	2	SEM	Semi-break in signal
	3	FJL	Full break in signal
	4	KEY	Key signal
	5	NB1	Noise blanker 1 switch
	6	SS	Standby signal
	7	NBC	NB time constant
	8	CV	Carrier volume
	9	NB2	Noise blanker 2 switch
	10	PC1	Power control volume
	11	RFB	RF GAIN input
	12	PC2	Power control volume
	13	RFG	RF GAIN volume output
	14	MV1	Mic volume GND
	15	MV2	Mic volume output
	16	MV3	Mic volume input
CN4	1	S3	Key scan input
	2	S2	Key scan input
	3	SCK	Display serial clock
	4	S1	Key scan input
	5	SDA	Display serial data
	6	S0	Key scan input
	7	SLH	Display serial data (Latch signal)
	8	K3	Key scan output
	9	XP	Display function signal
	10	K2	Key scan output
	11	LM	LED (M SCR)
	12	K1	Key scan output
	13	LF	LED (F LOCK)
	14	K0	Key scan output
	15	L1	LED (1MHz)
	16	5C	+5V (Display)
	17	CK3	Sub encoder pulse output
	18	CK4	Sub encoder pulse output
CN5	1	SPO	Speaker output
	2	8M	+8V
	3	GND	GND
	4	MU	Mic up data
	5	MD	Mic down data
	6	SS	Standby switch
	7	MIC	Microphone
	8	GND	GND (Mic)

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

TERMINAL FUNCTION

Connector No.	Terminal No.	Terminal Name	Terminal Function
SIGNAL UNIT (X57-3190-00) : TS-680S			
SIGNAL UNIT (X57-3200-XX) : TS-140S			
CN1	1	MV3	Mic volume output
	2	MV2	Mic volume input
	3	MV1	Mic volume GND
	4	RFG	RF GAIN volume input
	5	PC2	Power control volume
	6	RFB	RF GAIN output
	7	PC1	Power control volume
	8	NB2	Noise blanker 2 switch
	9	CV	Carrier volume
	10	NBC	NB time constant
	11	SS	Standby switch
	12	NB1	Noise blanker 1 switch
	13	KEY	Key signal
	14	FULL	Full break in signal
	15	SEM	Semi-break in signal
	16	COM	Full break in output
CN2	1	SW2	RF amplifier signal (TS-680S)
	2	SW1	VOX signal (TS-140S)
	3	NC	Not connected
	4	AGS	AGC switch
	5	SM2	S meter +
	6	ATS	RF ATT switch
	7	SM1	S meter -
	8	14A	+14V
	9	14D	+14V (DC-DC converter)
	10	TXB	TX power supply (+8V)
	11	GND	GND
	12	PMS	Power meter switch
	13	SS	Standby switch
	14	ALS	ALC meter switch
	15	PRS	Processor switch
	16	8V	+8V
CN3	1	GND	GND
	2	8V	+8V
	3	NC	Not connected
	4	14A	+14V
	5	VB2	VCO switching signal
	6	CSS	Standby control data
	7	VB1	VCO switching signal
	8	MD	Mic down data
	9	MUT	Mute signal
	10	ML	Mic up data
	11	PD	Power down signal
	12	CKY	Keying control signal
	13	SBK	Blanking signal
	14	RB	Receive timing control signal
	15	FOC	Sub tone control signal
	16	CTX	Transmit timing control signal
	17	SSC	SSB mode data
	18	B0	Band data
	19	CWC	CW mode data
	20	B1	Band data
	21	AMC	AM mode data
	22	B2	Band data
	23	FMC	FM mode data
	24	B3	Band data
	25	CNC	CW narrow mode data
	26	B4	Band data
CN4	1	RAT	RX antenna input
	2	GND	GND
	3	RL	Relay power supply (TX 13V)

Connector No.	Terminal No.	Terminal Name	Terminal Function
CN5	1	50F (INC)	50 ~ 54MHz (TS-680S) Not connected (TS-140S)
	2	28F	21.5 ~ 30MHz
	3	21F	14.5 ~ 21.5MHz
	4	14F	7.5 ~ 14.5MHz
	5	7F	4 ~ 7.5MHz
	6	4F	2.5 ~ 4MHz
	7	2F	~ 2.5MHz
CN6	1	8D	+8V (Active low-pass filter)
	2	VCV	VCO control voltage
	3	GND	GND
CN7 (TS-680S)	1	NC	Not connected
	2	50B	50MHz power supply
CN8	1	GND	GND
	2	14D	+14V (DC-DC converter)
	3	14A	+14V (DC-DC converter)
	4	14A	+14V (DC-DC converter)
CN9	1	8V	+8V
	2	SS	Standby switch
	3	GND	GND
	4	SPO	Speaker output
	5	MD	Mic down data
	6	MU	Mic up data
CN10	1	FSQ	Squeech volume
	2	GND	GND
	3	AF3	AF GAIN output
	4	AF2	AF GAIN volume
	5	AF1	AF GAIN GND
CN11	1	PH3	Phone GND
	2	PH2	Phone input
	3	PH1	Phone output
CN12	1	SP	Speaker output
	2	GND	GND
CN13	1	GND	GND
	2	VSR	Reflected wave voltage
	3	GND	GND
	4	VSF	Forward wave voltage
CN14	1	TXB	TX power supply (+8V)
	2	PT	Temperature protection signal
CN15	1	PPD	Packet power down
	2	ANO	RX audio output
	3	GND	GND
	4	PSQ	Packet squeech
	5	GND	GND
	6	MV3	Mic amp output
	7	GND	GND
	8	PRS	Processor switch
	9	RXB	RX power supply (+8V)
	10	GND	GND
CN16	1	FMM	FM modulation signal
	2	GND	GND
CN17	1	GND	GND
	2	CAR	Carrier input (455kHz)
	3	GND	GND
	4	BZ	Beep sound input
CN18	1	CF1	Option filter output
	2	GND	GND
CN19	1	CF2	Option filter input
	2	GND	GND
CN20	1	DRV	Drive output
	2	GND	GND

TERMINAL FUNCTION

T

Terminal Function
TS-680S
TS-140S
ie output
e nput
ie GND
volume nput
itrol volume
output
itrol volume
ker 2 switch
ume
onstant
witch
ker 1 switch
in s.gnal
< in signal
in output
ifer signal (TS-680S)
nal (TS-140S)
cted
h
w tch
DC converter)
supply (+8V)
er switch
itch
r switch
witch
cted
ning signal
ntro data
ning signal
ata
a
n signal.
itrol signal
gnal
ing control signa.
ontrol signal
ing control s gna
ata
ata
ata
mode data
input
r supply (TX 13V)

Connector No.	Terminal No.	Terminal Name	Terminal Function
CN5	1	50F (NC)	50 ~ 54MHz (TS-680S) Not connected (TS-140S)
	2	28F	21.5 ~ 30MHz
	3	21F	14.5 ~ 21.5MHz
	4	14F	7.5 ~ 14.5MHz
	5	7F	4 ~ 7.5MHz
	6	4F	2.5 ~ 4MHz
	7	2F	~ 2.5MHz
CN6	1	8D	+8V (Active low pass filter)
	2	VCV	VCO control voltage
	3	GND	GND
CN7 (TS-680S)	1	NC	Not connected
	2	50B	50MHz power supply
CN8	1	GND	GND
	2	14D	+14V (DC-DC converter)
	3	14A	+14V (DC-DC converter)
	4	14A	+14V (DC-DC converter)
CN9	1	8V	+8V
	2	SS	Standby switch
	3	GND	GND
	4	SPO	Speaker output
	5	MD	Mic down data
	6	MU	Mic up data
CN10	1	FSQ	Squelch volume
	2	GND	GND
	3	AF3	AF GAIN output
	4	AF2	AF GAIN volume
	5	AF1	AF GAIN GND
CN11	1	PH3	Phone GND
	2	PH2	Phone input
	3	PH1	Phone output
CN12	1	SP	Speaker output
	2	GND	GND
CN13	1	GND	GND
	2	VSR	Reflected wave voltage
	3	GND	GND
	4	VSF	Forward wave voltage
CN14	1	TXB	TX power supply (+8V)
	2	PT	Temperature protection signal
CN15	1	PPD	Packet power down
	2	ANO	RX audio output
	3	GND	GND
	4	PSQ	Packet squelch
	5	GND	GND
	6	MV3	Mic amp output
	7	GND	GND
	8	PRS	Processor switch
	9	RXB	RX power supply (+8V)
	10	GND	GND
CN16	1	FMM	FM modulation signal
	2	GND	GND
CN17	1	GND	GND
	2	CAR	Carrier input (455kHz)
	3	GND	GND
	4	BZ	Beep sound input
CN18	1	CF1	Option filter output
	2	GND	GND
CN19	1	CF2	Option filter input
	2	GND	GND
CN20		DRV	Drive output
		GND	GND

Connector No.	Terminal No.	Terminal Name	Terminal Function
CN21		HET	Heterodyne input
		GND	GND
CN22		VCO	VCO output
		GND	GND
CN501 (TS-140S)	1	GND	GND
	2	VOX	VOX
CN27	1	GND	GND
	2	PKD	Packet data
	3	SS	Standby switch
	4	PKS	Packet standby
	5	PSQ	Packet squelch
	6	ANO	RX audio output
	7	GND	GND
	8	GND	GND
CN28	1	NC	Not connected
	2	NC	Not connected
	3	ANO	RX audio output
	4	GND	GND
	5	PSQ	Packet squelch
	6	NC	Not connected
	7	NC	Not connected
	8	GND	GND
	9	PKS	Packet standby
	10	NC	Not connected
	11	PKD	Packet power down
	12	GND	GND
	13	SS	Standby switch
CN29	1	TON	Sub-tone input
	2	TOG	Sub-tone GND
		TOB	Sub-tone power supply
		CAL	

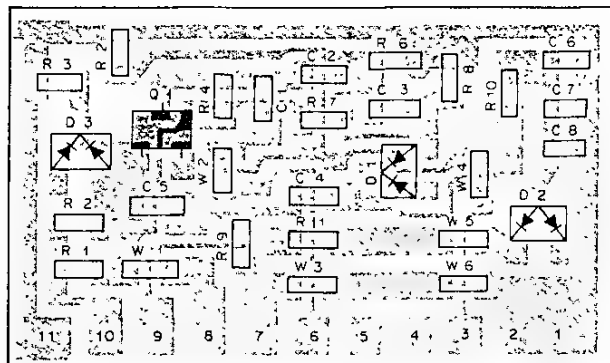
TERMINAL FUNCTION

Connector No.	Terminal No.	Terminal Name	Terminal Function
CN21		HET GND	Heterodyne input (39.6MHz) GND
CN22		VCO GND	VCO output GND
CN501 (TS-140S)	1 2	GND VOX	GND VOX
CN27	1 2 3 4 5 6 7 8	GND PKD SS PKS PSQ ANO GND GND	GND Packet data Standby switch Packet standby Packet squelch RX audio output GND GND
CN28	1 2 3 4 5 6 7 8 9 10 11 12 13	NC NC ANO GND PSQ NC NC GND PKS NC PKD GND SS	Not connected Not connected RX audio output GND Packet squelch Not connected Not connected GND Packet standby Not connected Packet power down GND Standby switch
CN29	1 2	TON TOG	Sub-tone input Sub-tone GND
		TOB	Sub-tone power supply (+8V)
		CAL	

TS-140S/680S PC BOARD VIEWS (TS-140S)

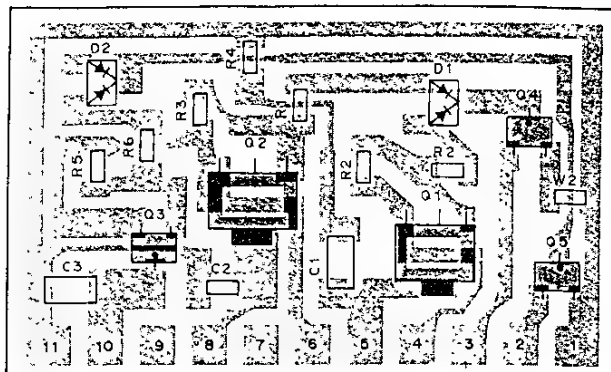
SIDE TONE (X59-1060-00)

Component side view



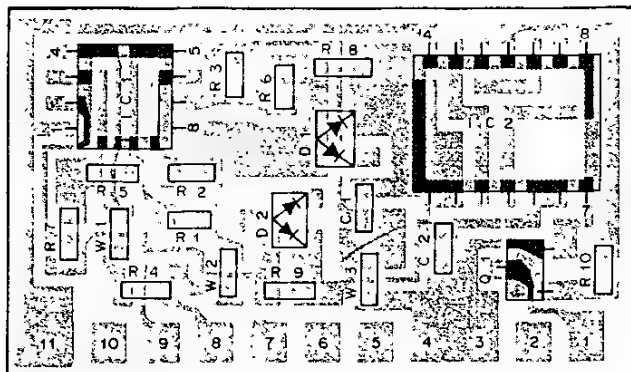
TRX (X59-3340-00)

Component side view



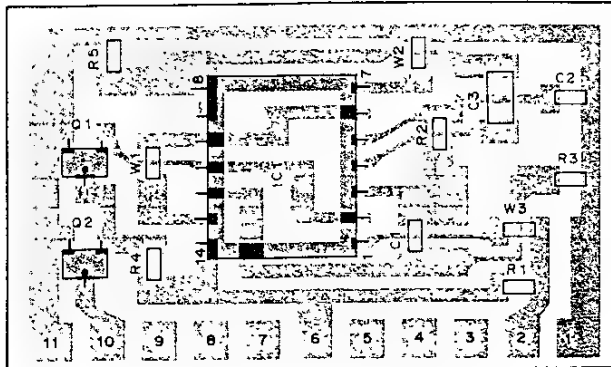
VOX (X59-1080-00)

Component side view



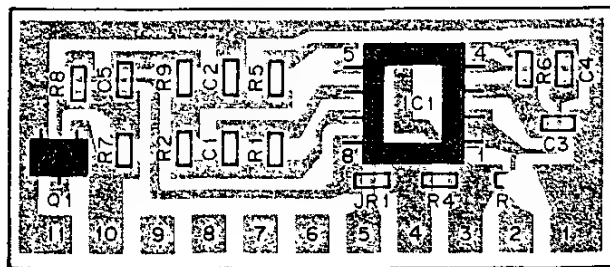
NB2 (X59-3350-00)

Component side view



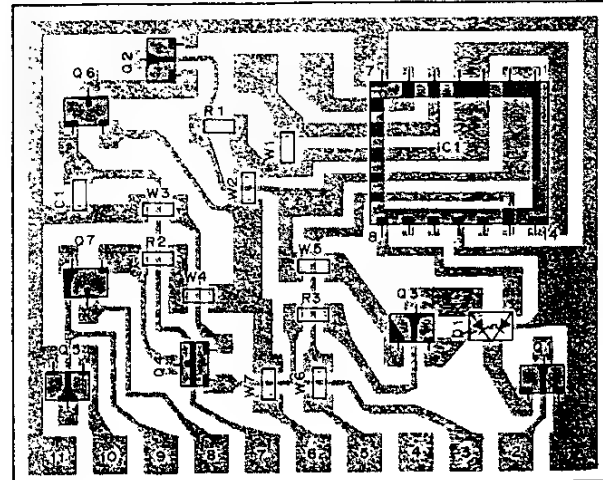
FM MIC AMP. (X59-3000-02)

Component side view



DELAY TIME (X59-3360-00)

Component side view



FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

TEL: 01844 - 351694

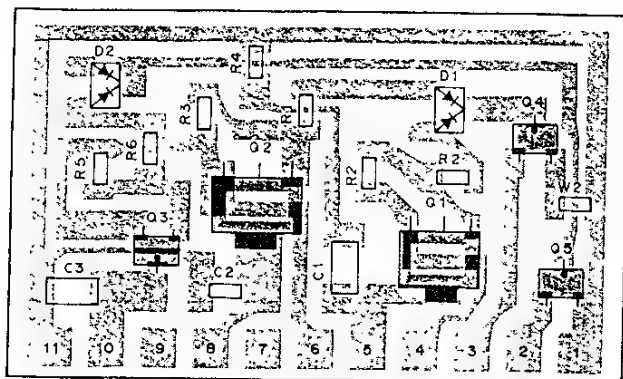
FAX: 01844 - 352554

ARD VIEWS (TS-140S)

SIGNAL UNIT (X57-3200-XX) -10 : K, M, T -61 : V

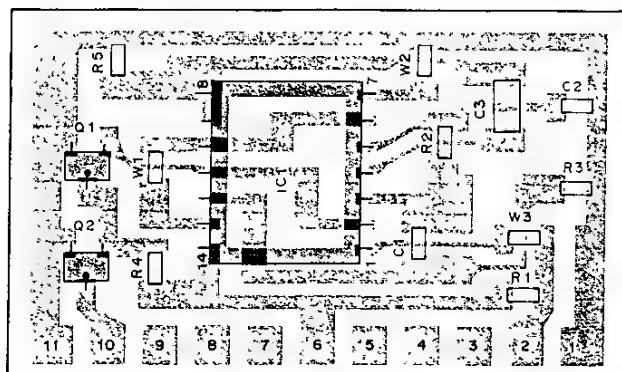
TRX (X59-3340-00)

Component side view



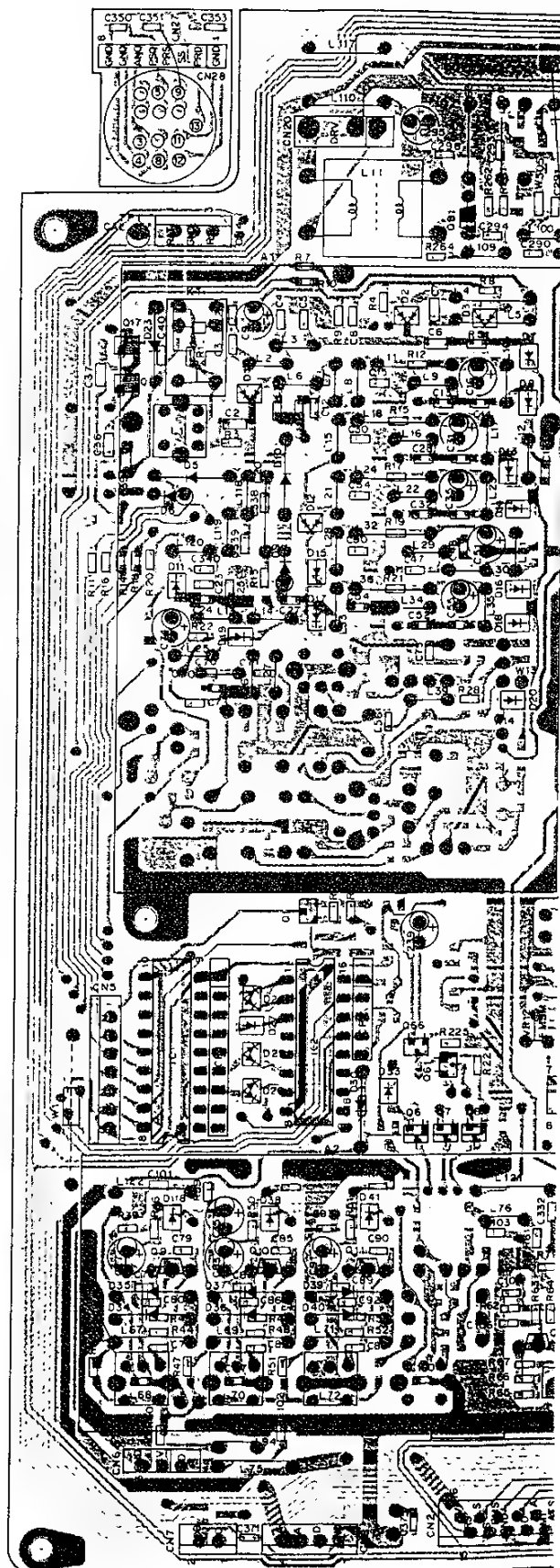
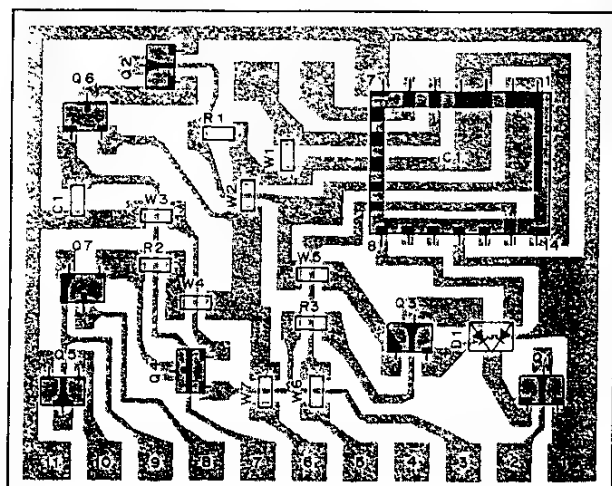
NB2 (X59-3350-00)

Component side view

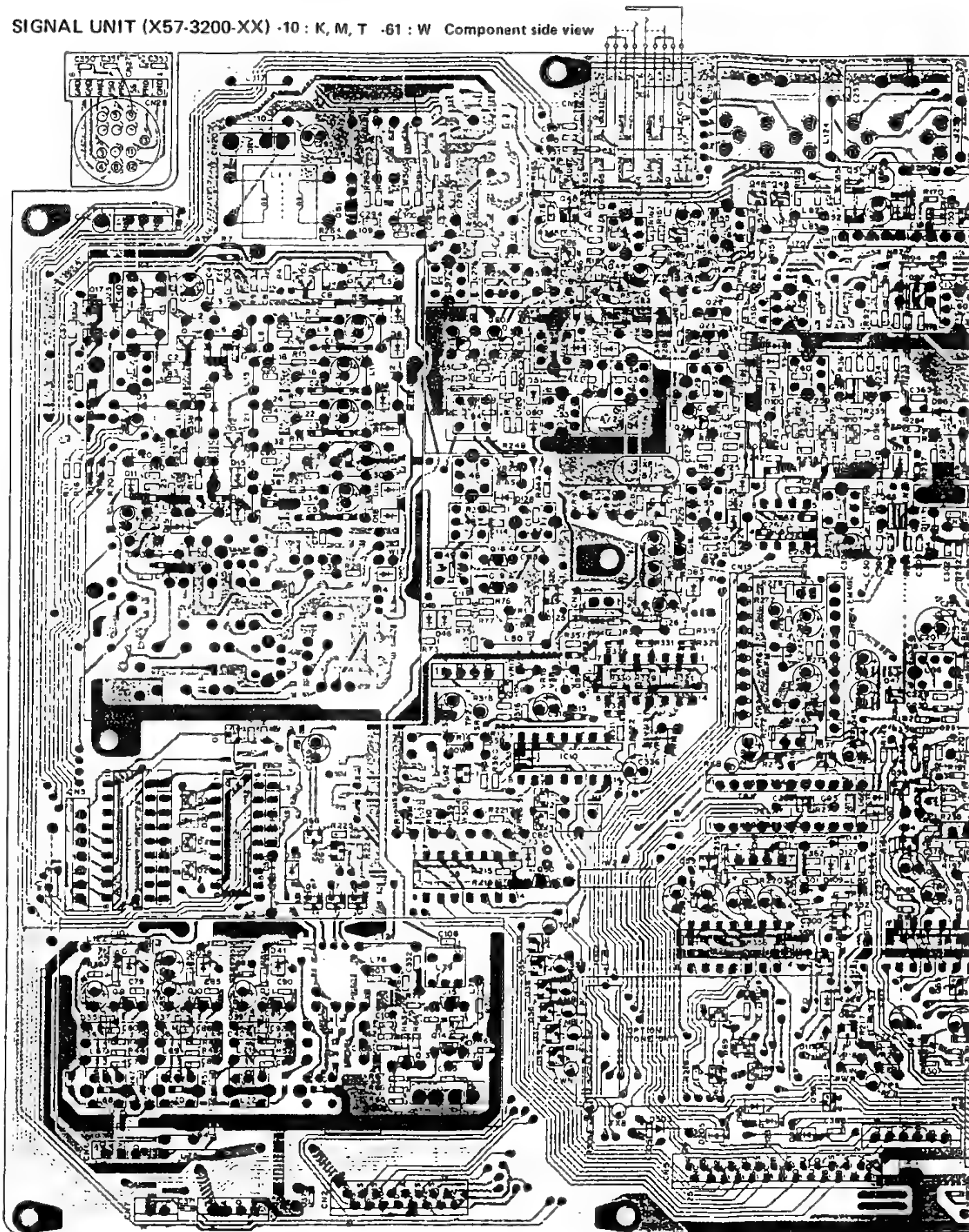


DELAY TIME (X59-3360-00)

Component side view



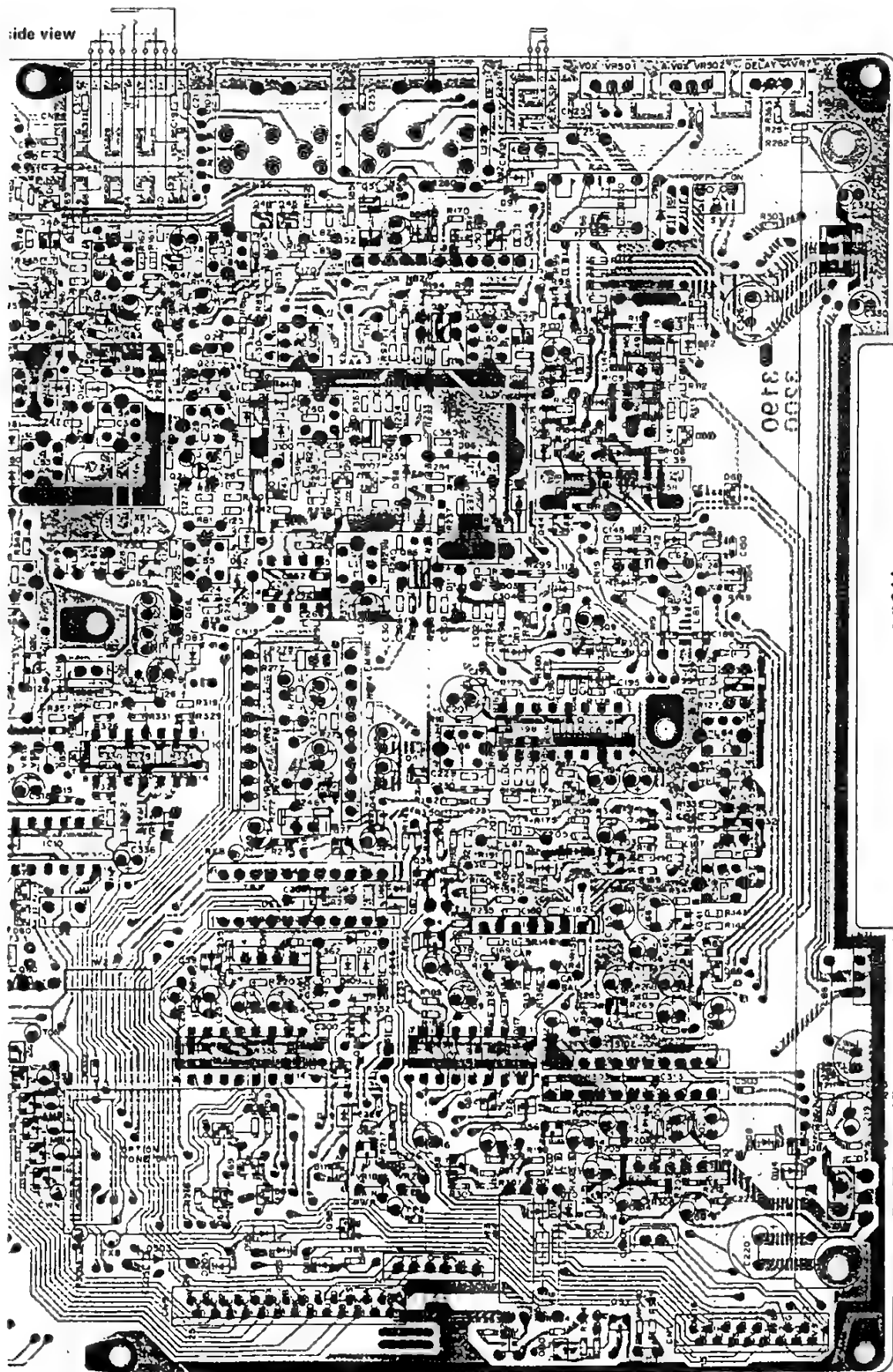
SIGNAL UNIT (X57-3200-XX) -10 : K, M, T -61 : W Component side view

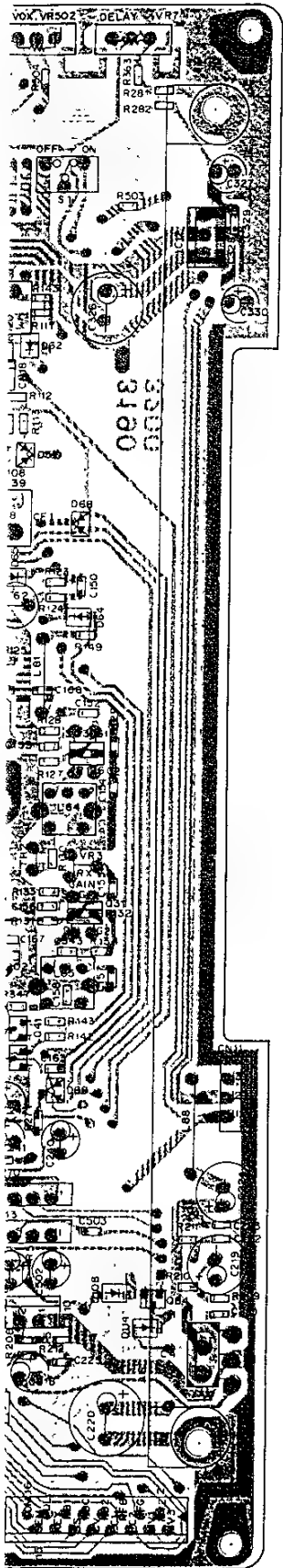


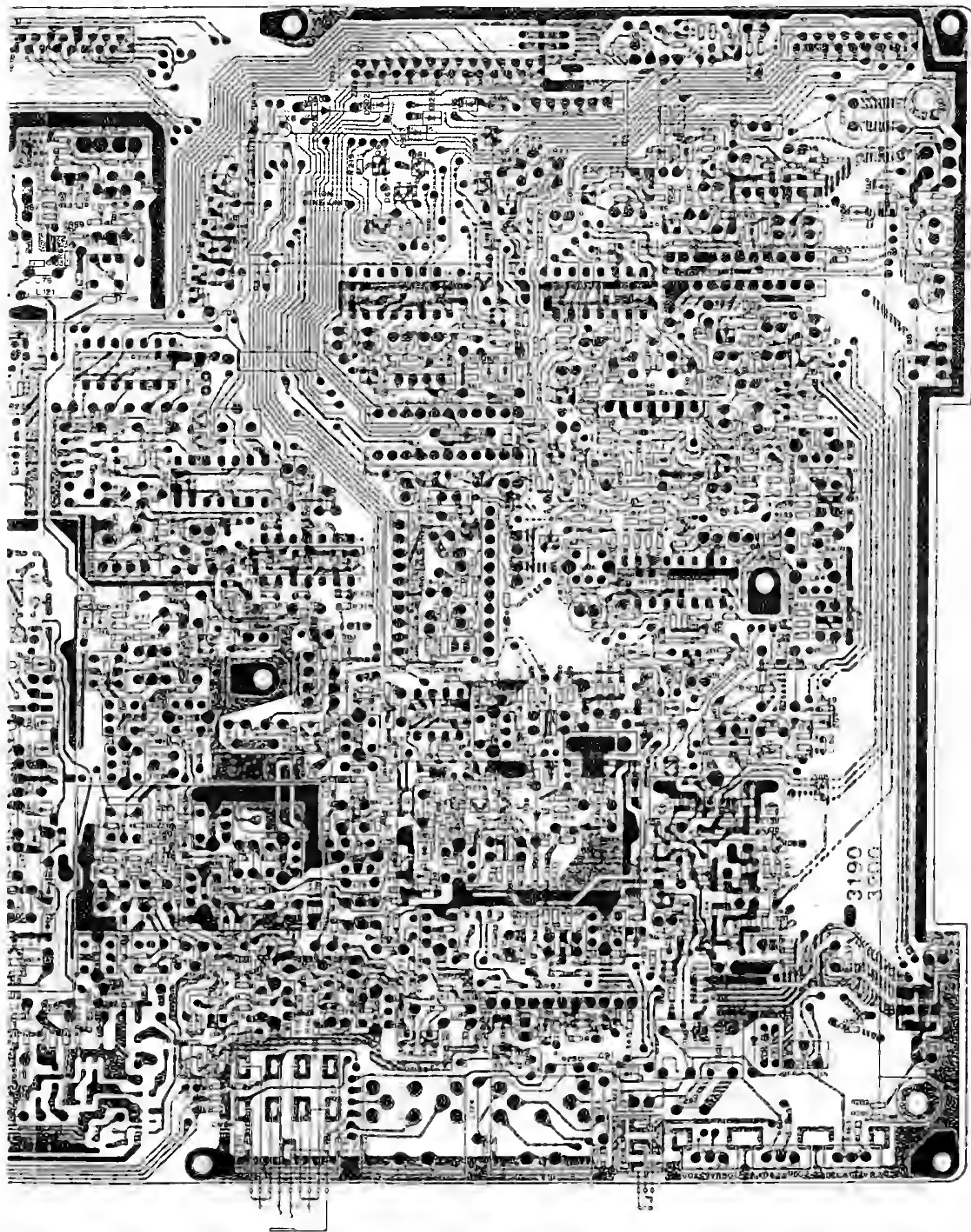
CONTACT:

MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

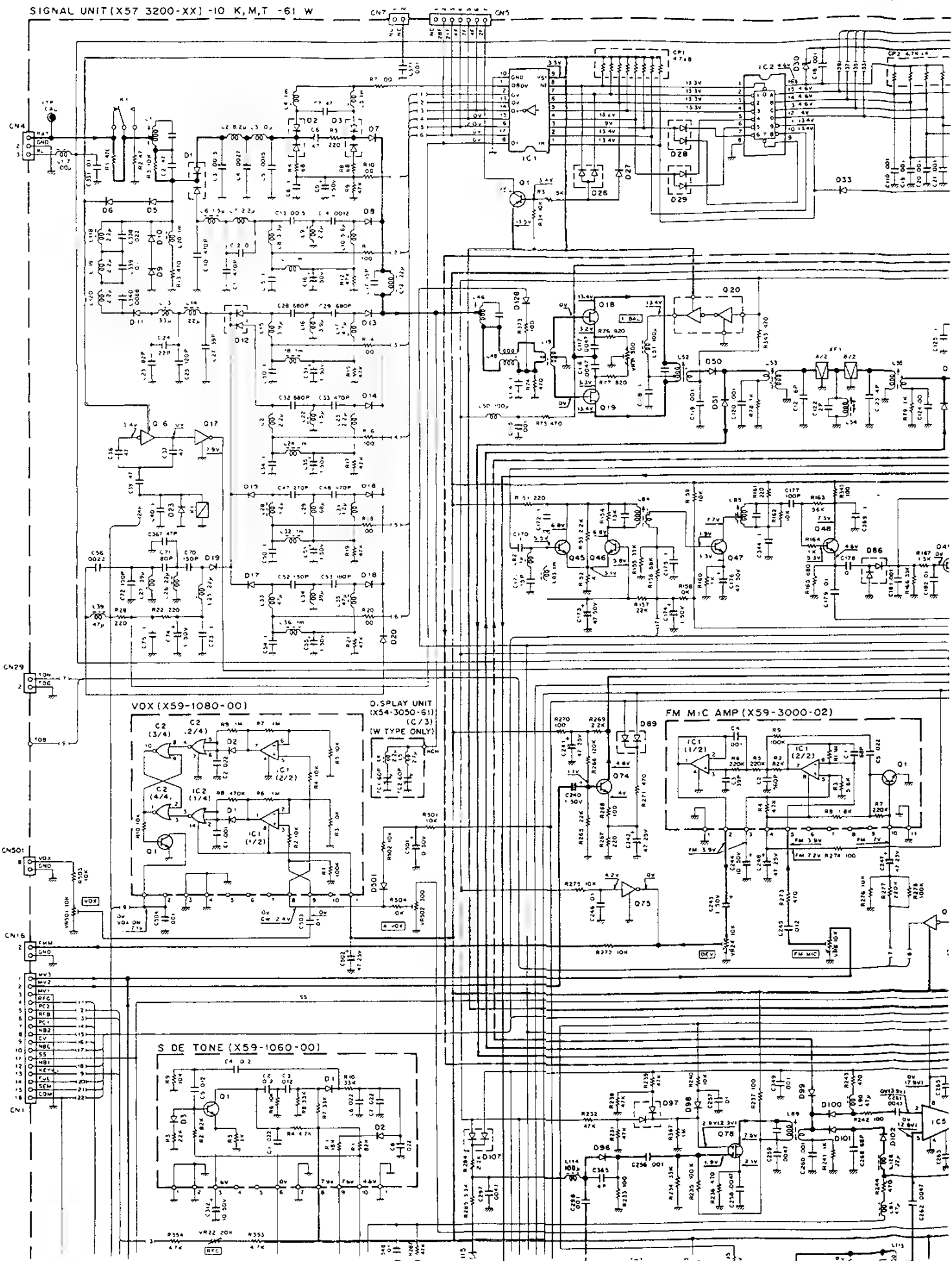


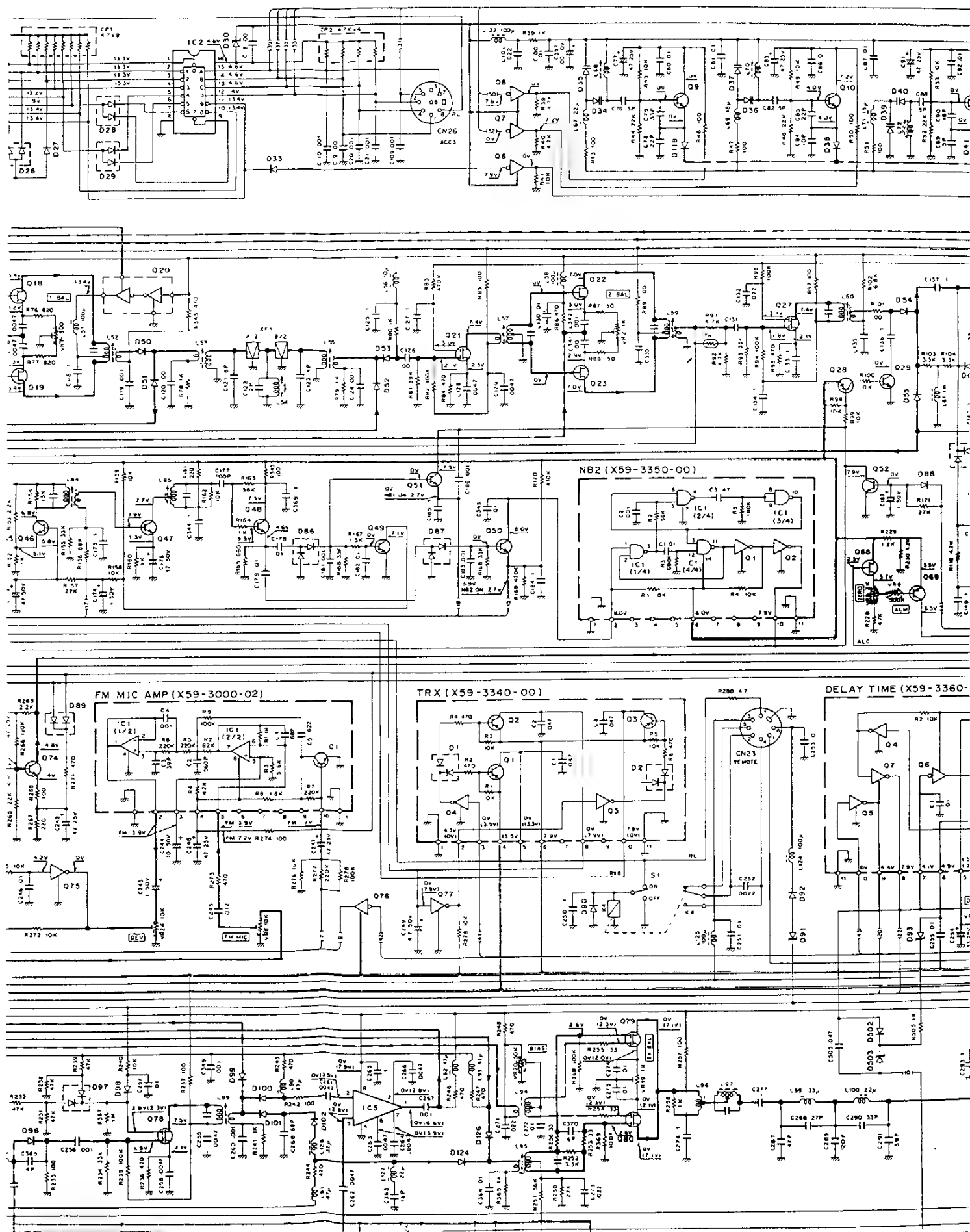


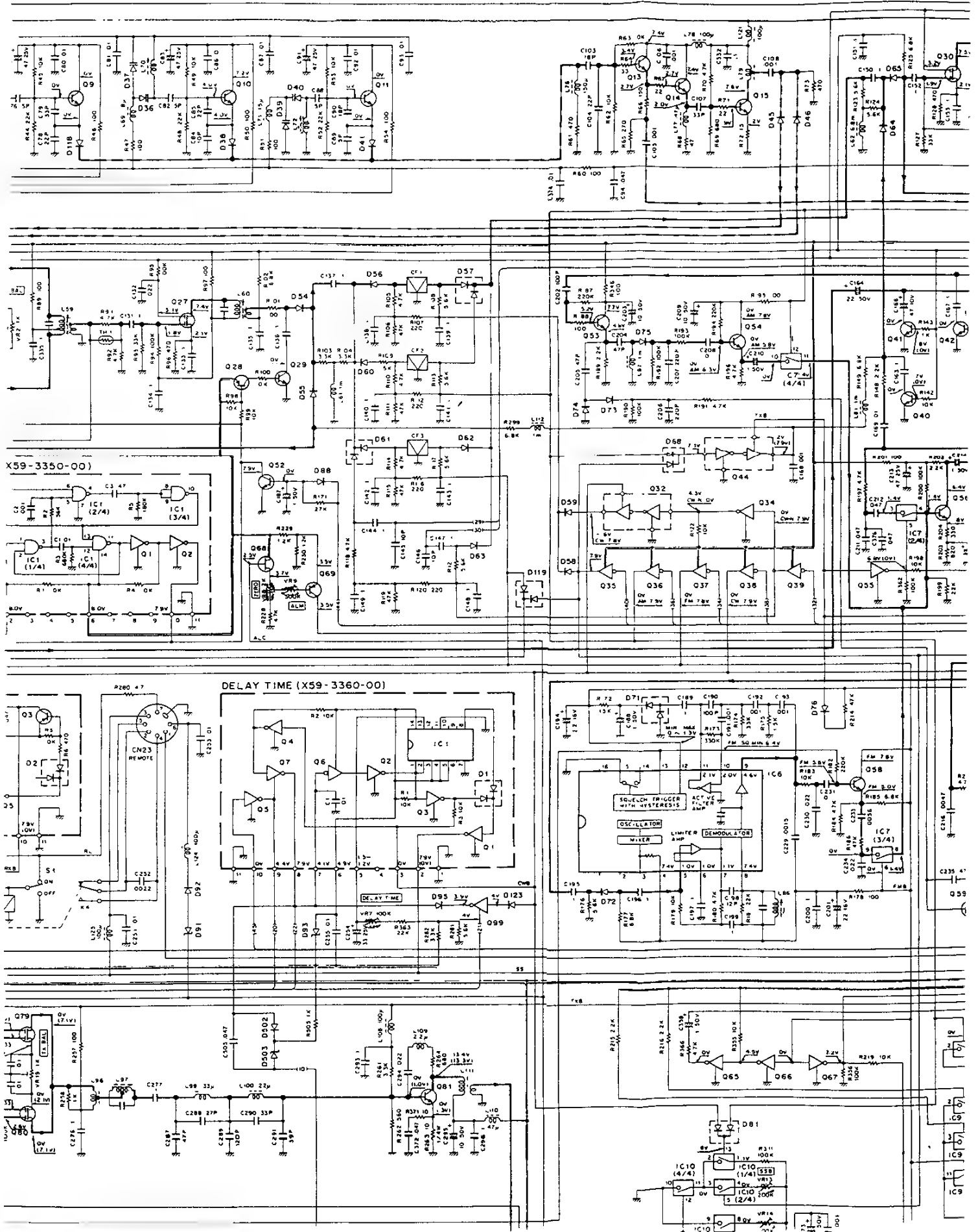


SIGNAL UNIT (X57-3200-XX)

SIGNAL UNIT (X57 3200-XX) -10 K,M,T -61 W





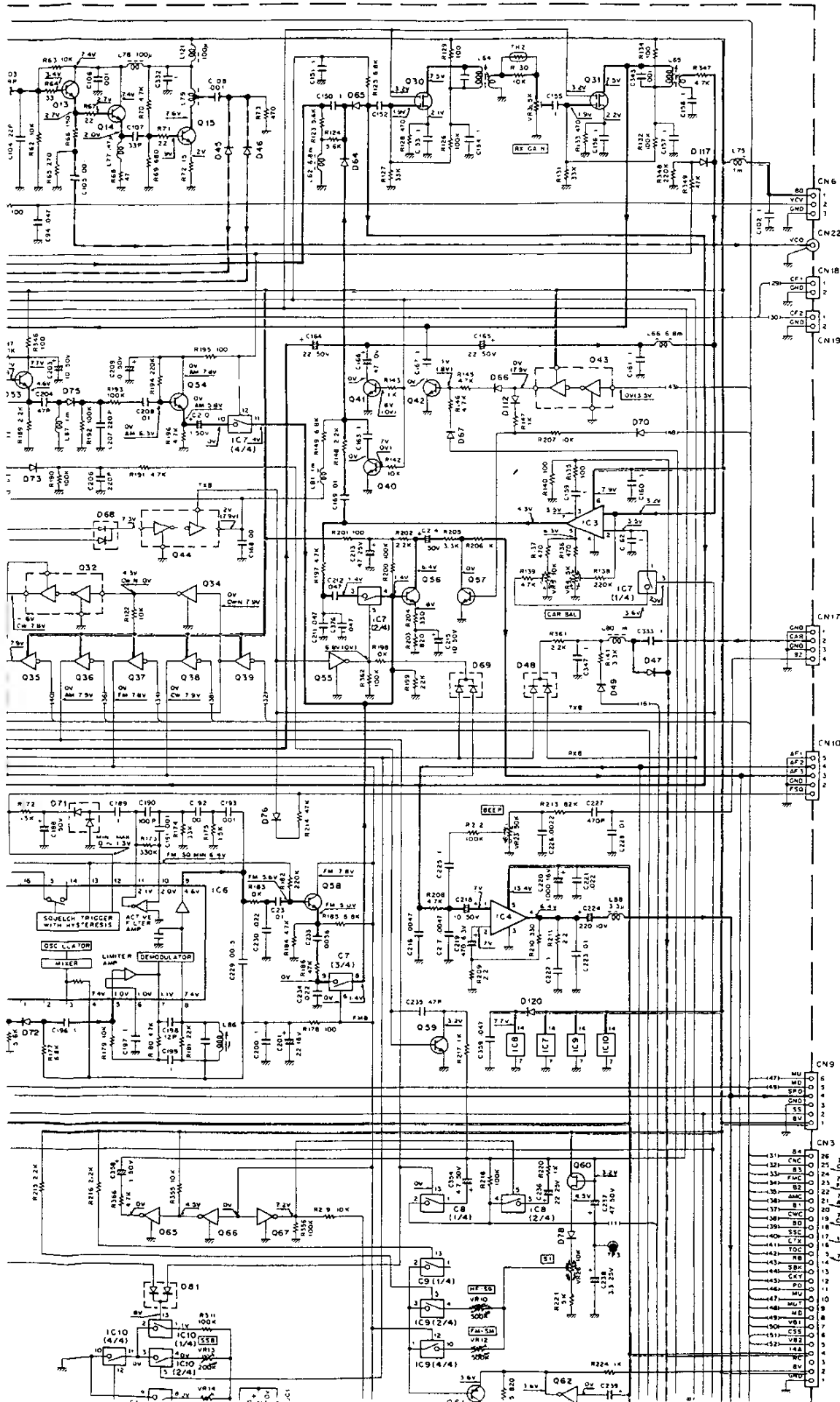


on f = 14MHz, Mode : USB. () : TX.

CIRCUIT DIAGRAM (TS-140S) TS-140S/680S

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554



(X57-3200-XX)
Q1,28,61,69,87,90 25A1162(Y)
Q17,34,55,65-67,75,77,84,
91,92,96,97,99 DTC114EX

Q6-8,35-39,76 DTA143EK
Q9-11,13 25C2668(Y)

Q14 25C1907
Q15,81 25C2053
Q16 DTA114EK
Q18,19,22,23 25K125-5
Q20,32,43,44,82,88 FMC3

Q21,79,80 35K122(L)
Q27,30,31,78,86 35K73(GR)
Q29,40-42,45-54,56-59,
74,89,98 25C2712(Y)
Q60,68 25K192A(Y)
Q62,93 DTC114TK

IC1 M54581P
IC2 M74LS145P
IC3 AN612
IC4 μ PC2002V
IC5 SN16913P
IC6 MC3357P
IC7-10 TC4066BP
IC11 LM324N
IC12 AN7808

D1-3,12 DAN235K
D5,10 U51090
D6,9 V08(G)
D7,8,11,13-20,38,41,43,46,
50-53,99-102,109,110,118,
122,124,126 RLS135
D23,90 151355

D48,57,61,68,69,77,
79-81,85,89,97,107,119 DAN202K
DAP202K

D26,28,29 027,33,49,54-56,58-60,
62-67,70,72-74,76,78,83,
88,92,95,108,112-115,117,120,
123,128,501,502 RLS73

D30,93,503 UZ-3.08
D34-37,39,40 ITT310TE
D47,96 M1204

D71,82,86,87 HSM88A5
D91 MT291JB
D111 KB-369
D116,125 RL23.68
D75,98 IN60PSPA

TH1-4 112-502-2

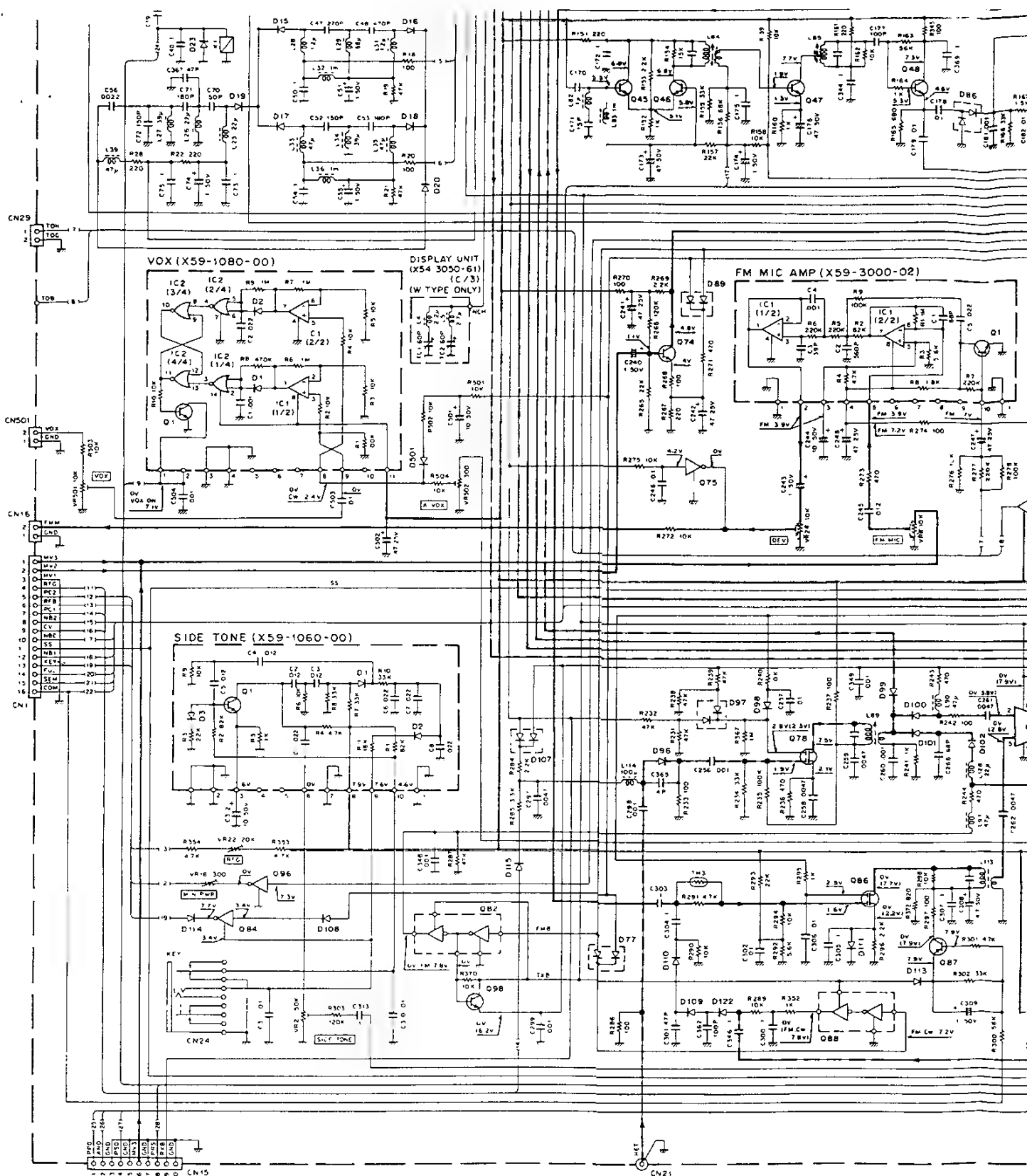
(X59-1080-00)
Q1 25C2712(Y)

D1,3 DAN202K
D2 OAP202K

(X59-1080-00)
Q1 25C2712(Y)

IC1 NJM2904M
IC2 TC4001BF

D1,2 DAP202K



M74LS145P

μPC2002V

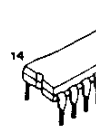
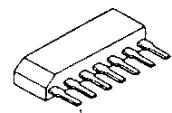
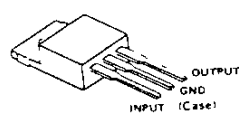
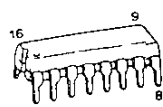
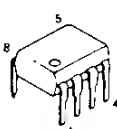
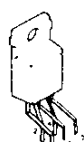
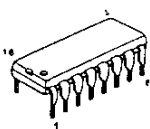
SN16913P

MC3357P

AN7808

AN612

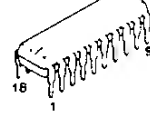
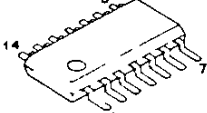
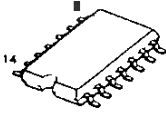
TC4066B



TC4001BF
TC4011BF

MB74LS122

M54581P



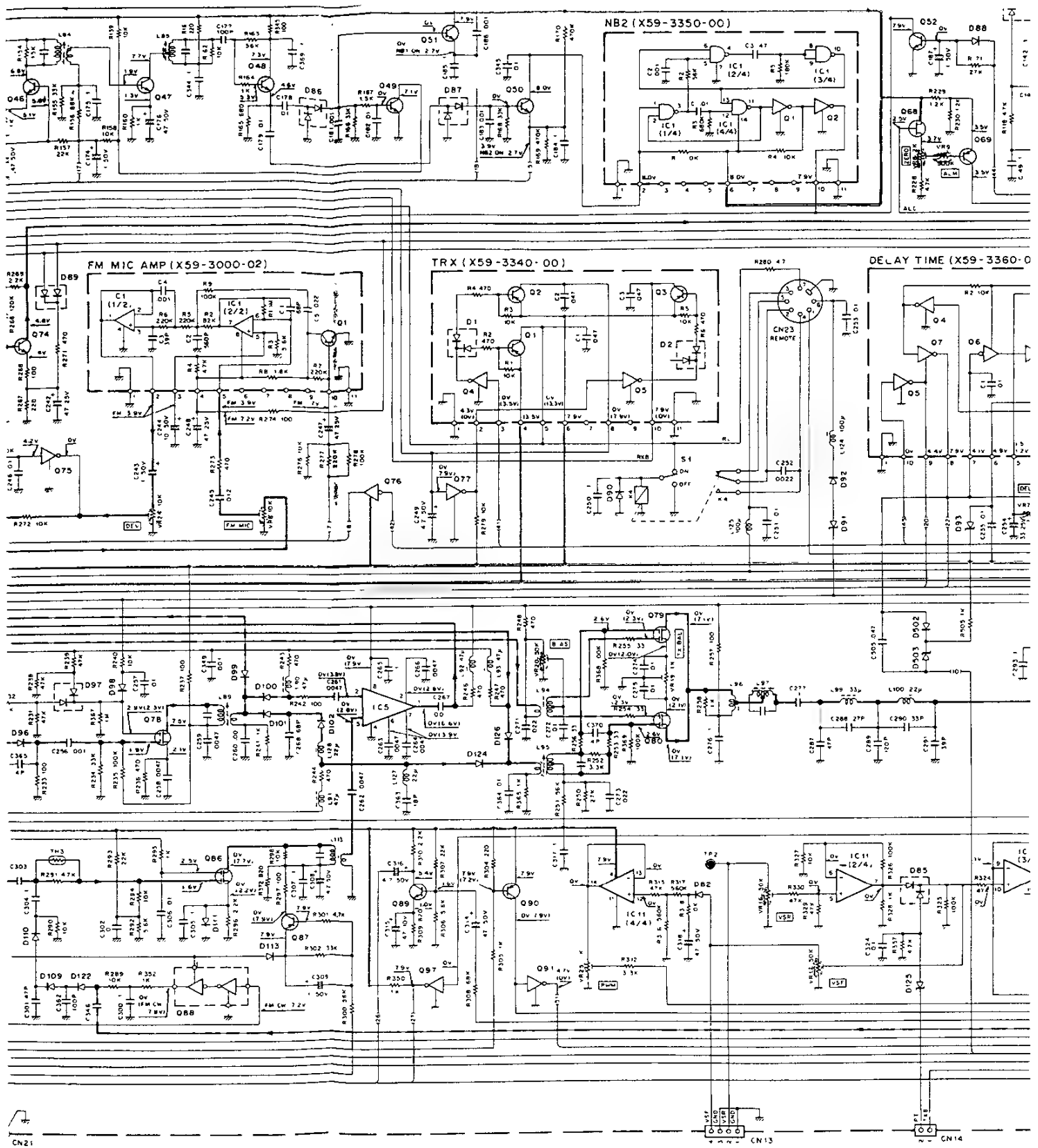
FOR SERVICE MANUALS
CONTACT:

MAURITRON TECHNICAL SERVICES

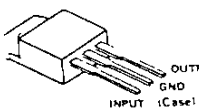
www.mauritron.co.uk

TEL: 01844 - 351694

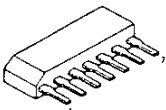
FAX: 01844 - 352004



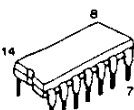
AN7808



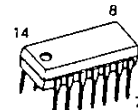
AN612



TC4066BP



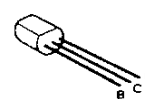
LM324N



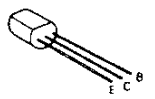
2SA1162(Y)
2SA1182(Y)
2SC2712(Y)
DTA114EK
DTA143EK
DTC114EK
DTC114TK

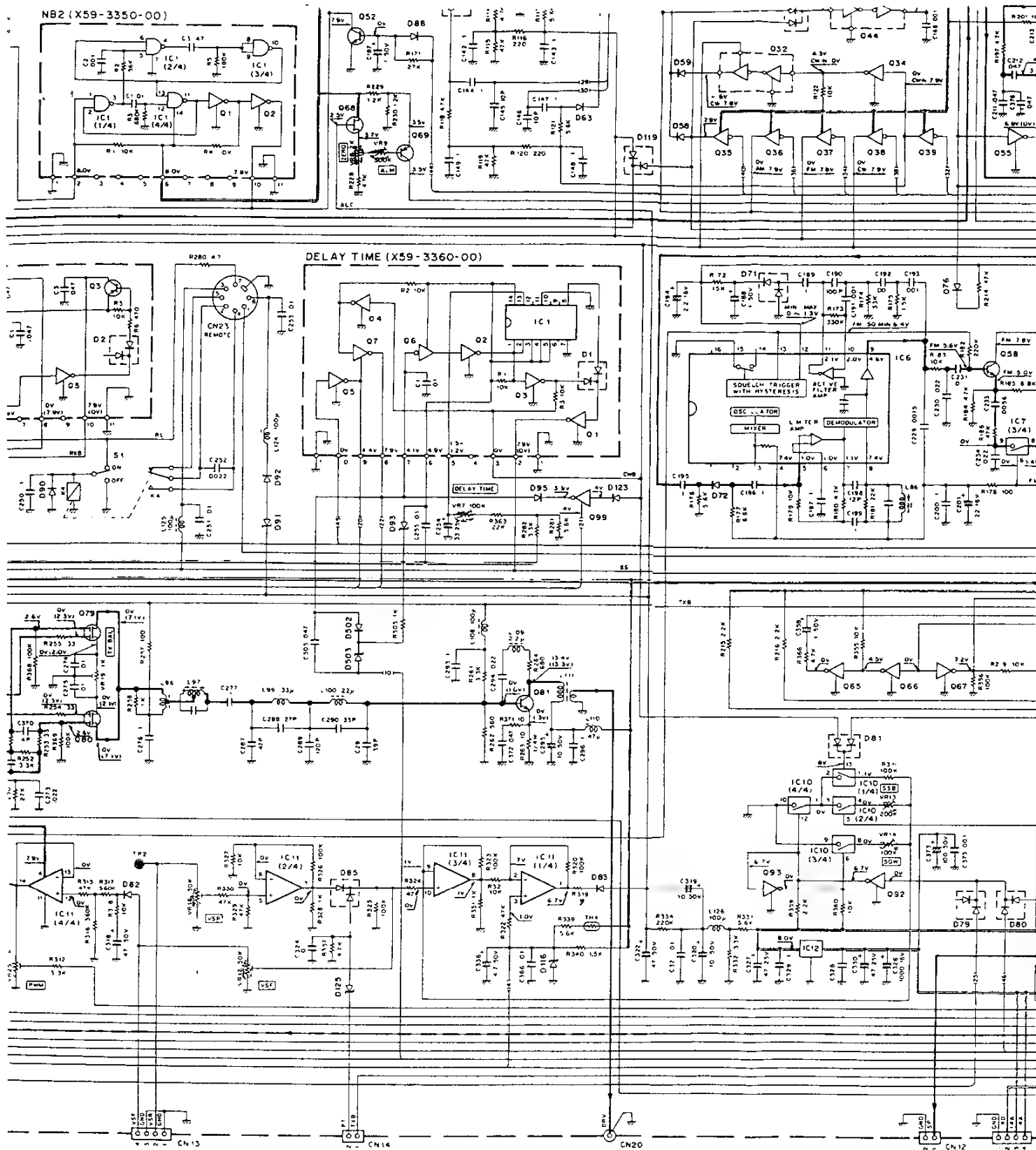


2SC2053



2SC1907





2SA1162(Y)
2SA1182(Y)
2SC2712(Y)
DTA114EK
DTA143EK
DTC114EK
DTC114TK

2SC2053

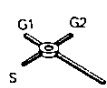
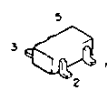
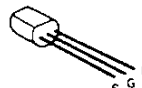
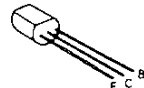
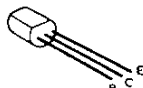
2SC1907

2SK125-5

FMC3

3SK122(L)

3SK73(GR)



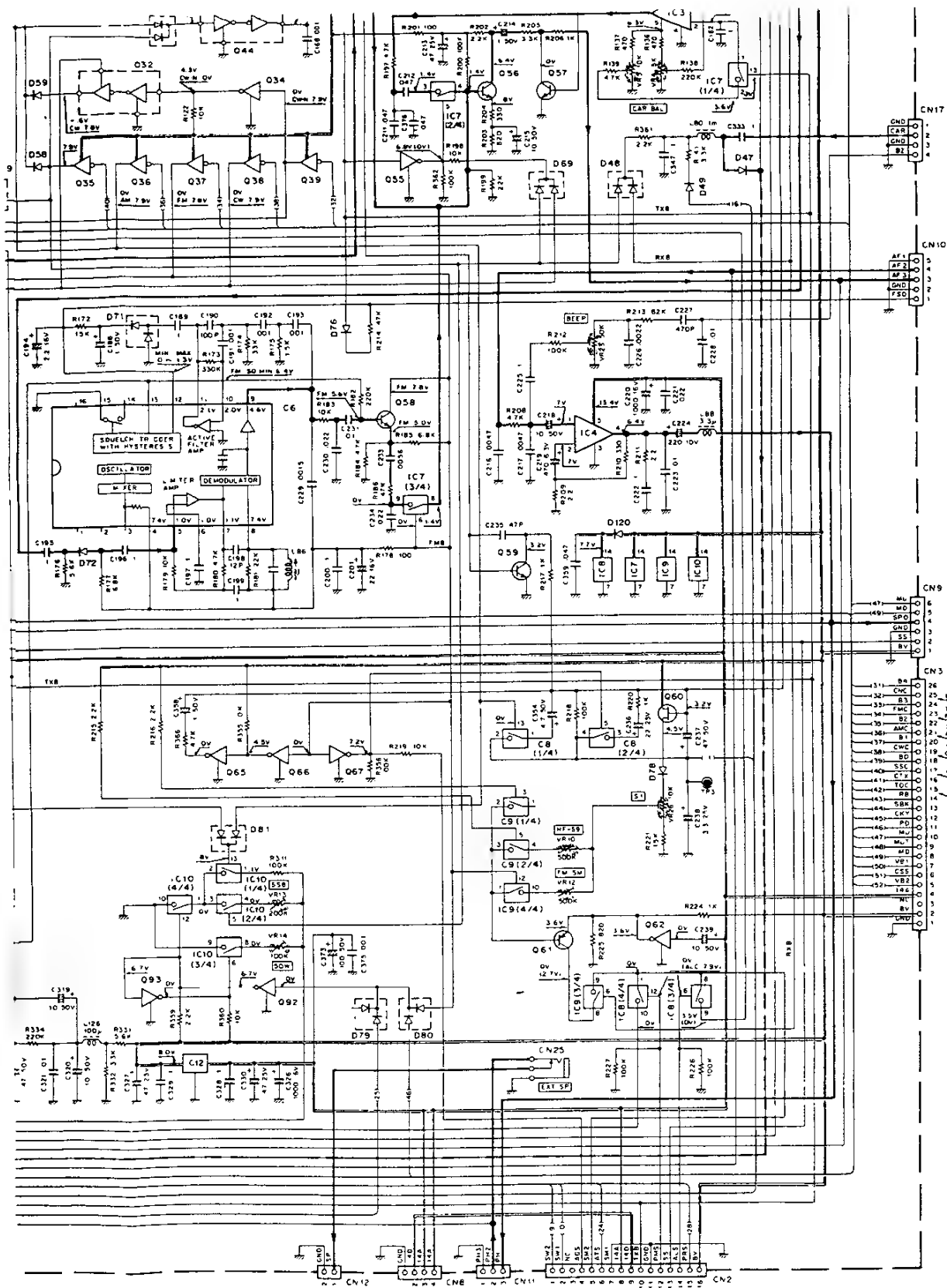
FOR SERVICE MANUALS
CONTACT:

MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk

TEL 01844 - 351694

FAX 01844 - 352554



(X57-3200-XX)
 01, 28, 61, 69, 87, 90 25A11
 017, 34, 55, 65-67, 75, 77, 84,
 91, 92, 96, 97, 99 DTC11
 06-8, 35-39, 76 DTA14
 09-11, 13 25C26
 014 25C19
 015, 81 25C20
 016 DTA11
 018, 19, 22, 23 25K12
 020, 32, 43, 44, 82, 88 FMC3
 021, 79, 80 35K12
 027, 30, 31, 78, 86 35K71
 029, 40-42, 45-54, 56-59,
 74, 89, 98 25C27
 060, 68 25K19
 062, 93 DTC11

IC1 M5458
 IC2 M74LS
 IC3 AN612
 IC4 μ PC20
 IC5 SN169
 IC6 MC335
 IC7-10 TC406
 IC11 LM324
 IC12 AN780

D1-3, 12 DAN23
 D5, 10 U5109
 D6, 9 VDB16
 D7, 8, 11, 13-20, 38, 41, 45, 46
 50-53, 99-102, 109, 110, 118,
 122, 124, 126 RLS13
 D23, 90 15155
 D48, 57, 61, 68, 69, 77,
 79-81, 85, 89, 97, 107, 119
 DAN20
 DAP2C
 D27, 33, 49, 54-56, 58-60,
 62-67, 70, 72-74, 76, 78, 83,
 88, 92, 95, 108, 112-115, 117, 120,
 123, 128, 501, 502 RLS73
 D30, 93, 503 JZ-3
 D34-37, 39, 40 ITT31
 D47, 96 M1204
 D71, 82, 86, 87 HSM8
 O91 MTZ9
 D111 KB-36
 D116, 125 RLZ3
 D75, 98 1N60P
 TH1-4 112-5

(X59-1060-00)
 Q1 25C27(12Y)
 D1,3 DAN202K
 D2 DAP202K

(X59-1080-00)
 Q1 25C27(12Y)
 IC1 NJM2904M
 IC2 TC4001BF

D1,2 DAP202K
 (X59-3000-02)
 Q1 25C27(12Y)

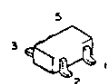
IC1 NJM4558M
 (X59-3340-00)
 Q1,2 25A1204(Y)
 Q3 25A1182(Y)
 Q4,5 DTC114EK

D1,2 DAN202(K)
 (X59-3350-00)
 Q1,2 DTC114EK

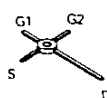
IC1 TC4011BF
 (X59-3360-00)
 Q1-5 DTC114EK
 Q6 DTA114EK
 Q7 DTC114TK

D1 DAN202(K)
 IC1 M874LS122

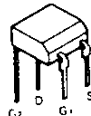
FMC3



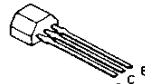
3SK122(L)



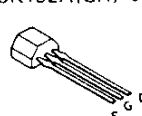
3SK73(GR)



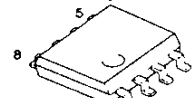
25C2668(Y)



25K192A(Y)
 25K192A(GR)+J

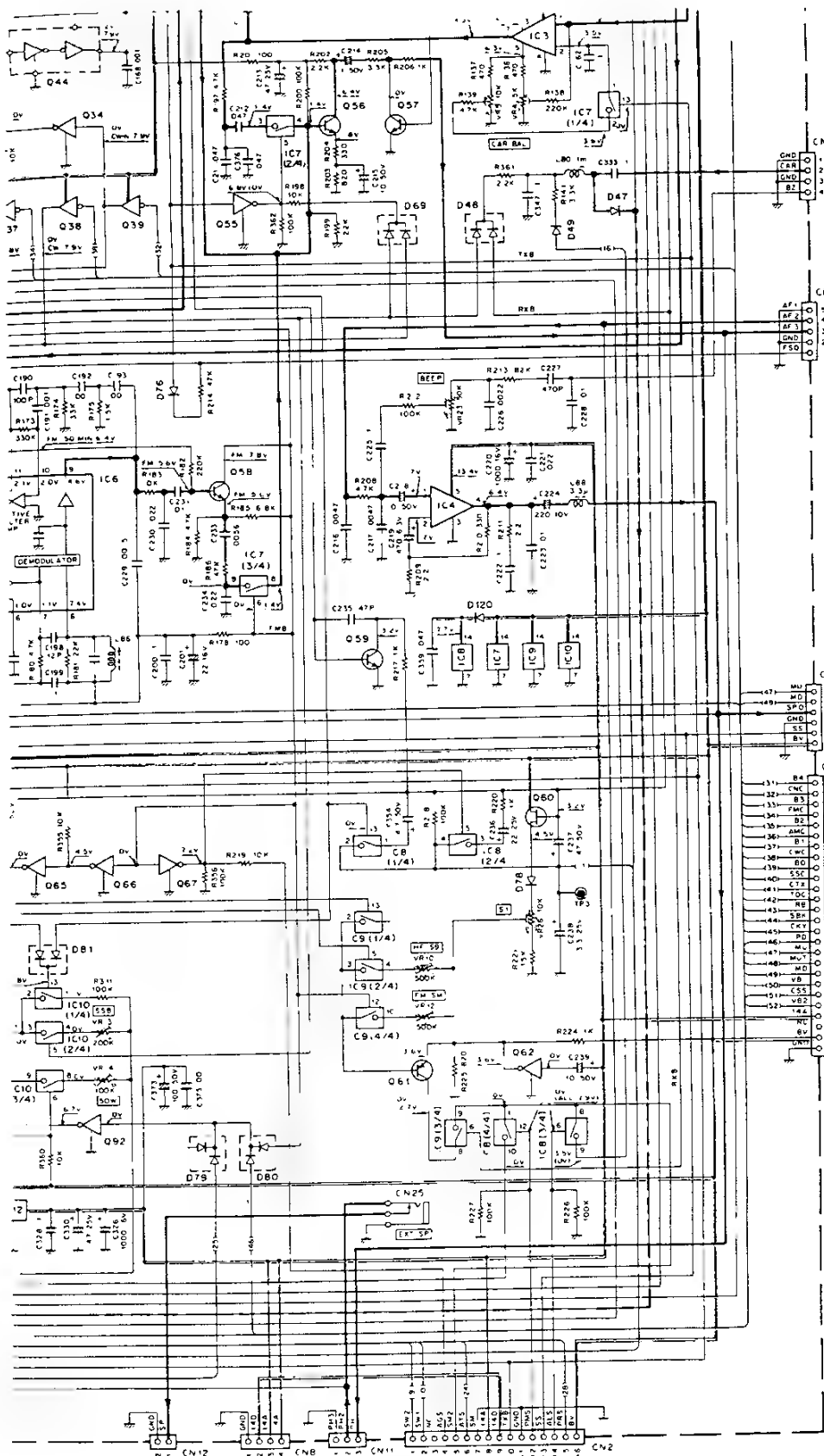


NJM2904M
 NJM4558M



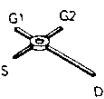
25A1204(Y)



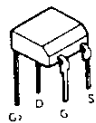


(X57-3200 XX)	
Q1, 28, 61, 69, 87, 90	2SA1162(Y)
Q17, 34, 55, 65, 67, 75, 77, 84,	DTC114EK
91, 92, 96, 97, 99	
O6~8, 35~39, 76	DTA143EK
O9~11, 13	2SC2668(Y)
Q14	2SC1907
Q15, 81	2SC2053
Q16	DTA114EK
Q18, 19, 22, 23	2SK125-5
Q20, 32, 43, 44, 82, 88	FMC3
Q21, 79, 80	3SK122(L)
Q27, 30, 31, 78, 86	3SK73(GR)
Q29, 40~42, 43~54, 56~59,	
74, 89, 98	2SC2712(Y)
Q60, 68	2SK192A(Y)
Q62, 93	DTC114TK
IC1	M54581P
IC2	M74LS145P
IC3	AN612
IC4	μPC2002V
IC5	SN16913P
IC6	MC3357P
IC7~10	TC4066BP
IC11	LM324N
IC12	AN7808
D1~3, 12	DAN235K
D5, 10	US1090
D6, 9	VOB(G)
D7, 8, 11, 13~20, 38, 41, 43, 46,	
50~53, 99~102, 109, 110, 118,	
122, 124, 126	RS135
D23, 90	1S1555
D48, 57, 61, 68, 69, 77,	
79~81, 85, 89, 97, 107, 119	
D26, 28, 29	DAN202K
D27, 33, 49, 54~56, 58~60,	DAP202K
62~67, 70, 72~74, 76, 78, 83,	
88, 92, 95, 108, 112~115, 117, 120,	
123, 128, 501, 502	RL573
D30, 93, 503	UZ-3.0B
D34~37, 39, 40	ITT310TC
D47, 96	M1204
D71, 82, 86, 87	HSM88A5
D91	MT91J8
D111	K8-369
D116, 125	RLZ3.6B
D75, 98	1N60PSPA
TH1~4	112-502.2
(X59-1060-00)	
Q1	2SC2712(Y)
D1, 3	DAN202K
D2	DAP202K
(X59-1080-00)	
Q1	2SC2712(Y)
IC1	NJM2904M
C2	TC4001BF
D1, 2	DAP202K
(X59-3000-02)	
Q1	2SC2712(Y)
IC1	NJM4558M
(X59-3340-00)	
Q1, 2	2SA1204(Y)
Q3	2SA1162(Y)
Q4, 5	DTC114EK
D1, 2	DAN202(K)
(X59-3350-00)	
Q1, 2	DTC114EK
C1	TC4011BF
(X59-3360-00)	
Q1~5	DTC114EK
Q6	DTA114EK
Q7	DTC114TK
D1	DAN202(K)
IC1	M874LS122

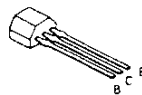
3SK122(L)



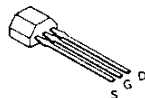
3SK73(GR)



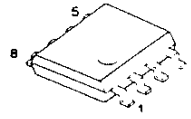
2SC2668(Y)



2SK192A(Y)
2SK192A(GR)+J



NJM2904M
NJM4558M

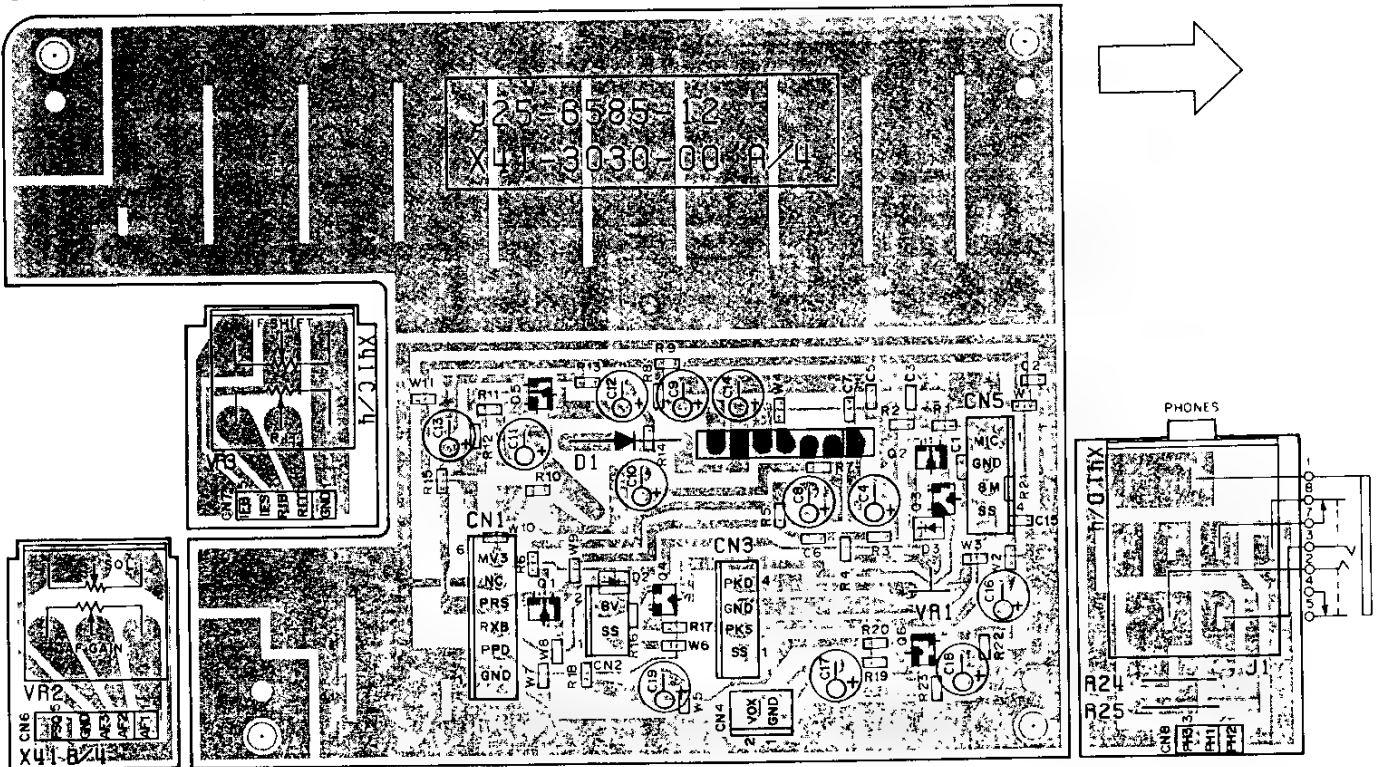


2SA1204(Y)

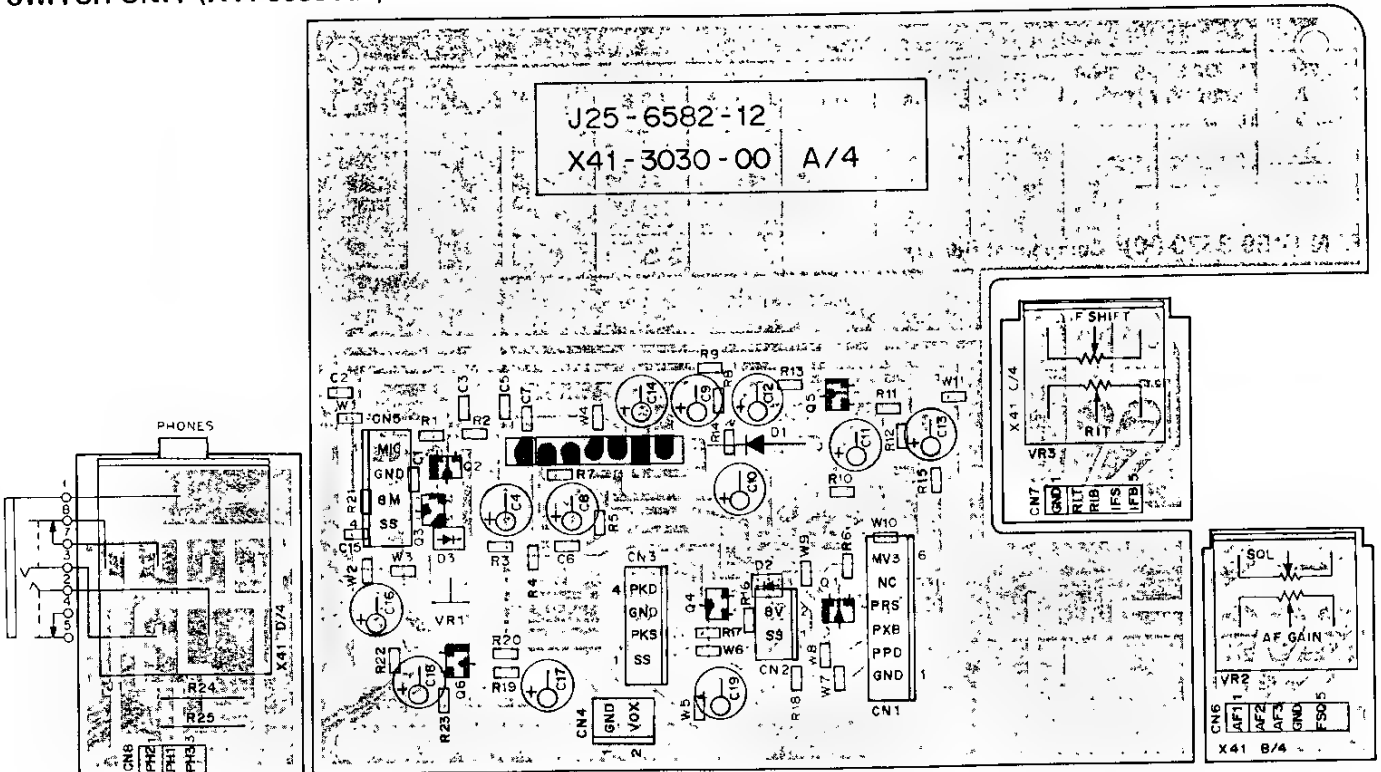


PC BOARD VIEWS TS-140S/680S

SWITCH UNIT (X41-3030-XX) -00: TS-680S -11: TS-140S Component side view



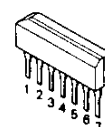
SWITCH UNIT (X41-3030-XX) -00: TS-680S -11: TS-140S Foil side view



Q1-3 DTC114EK Q4 2SA1162(Y) Q5,6 2SC2712(Y)
IC1 μ PC1158H2
D1 1N60 D2,3 RLS73

CN4,Q6
C16-C19 } TS-140S only
R18-R23

μ PC1158H2

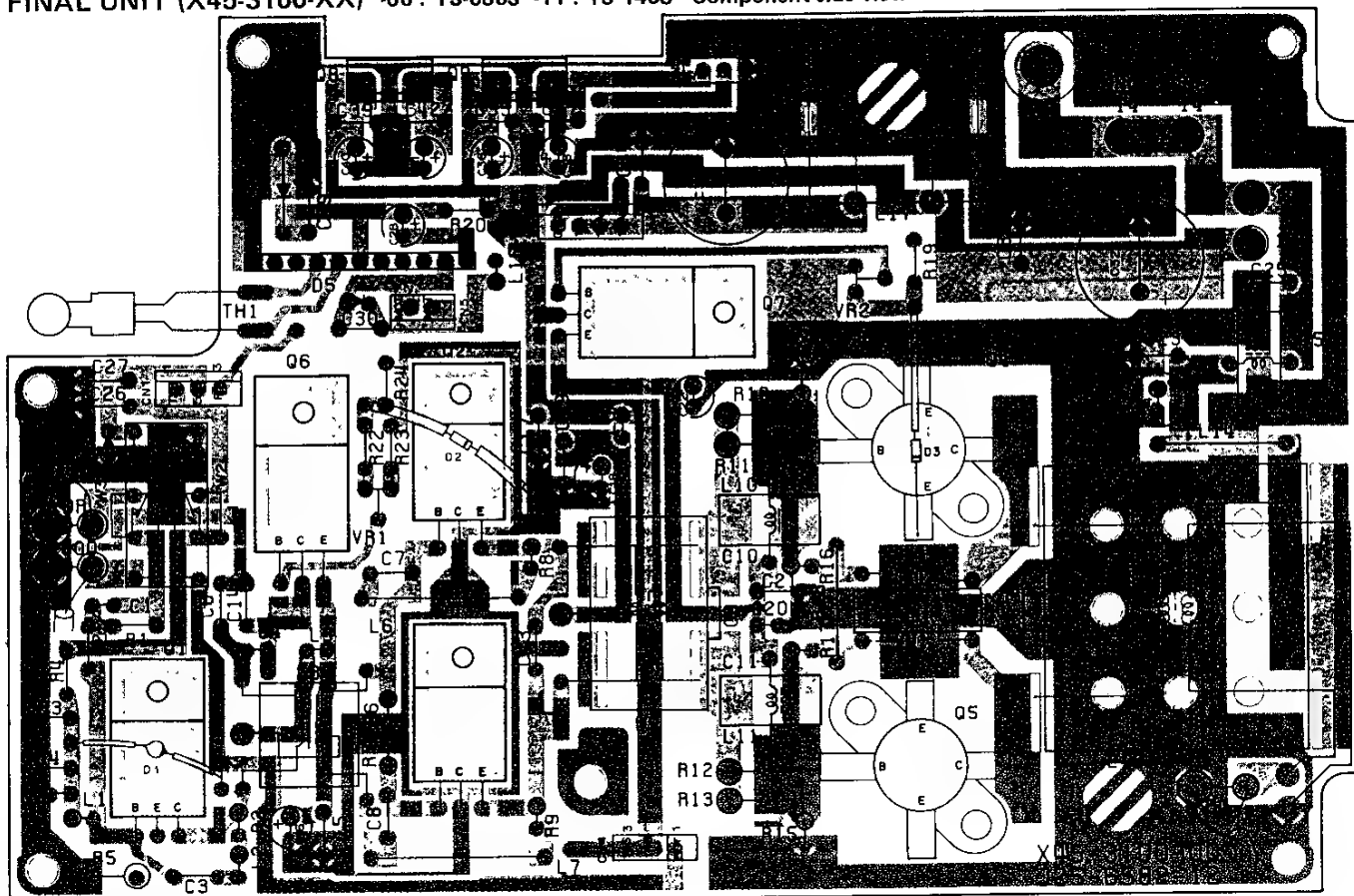


2SA1162(Y)
2SC2712(Y)
DTC114EK



TS-140S/680S PC BOARD VIEWS

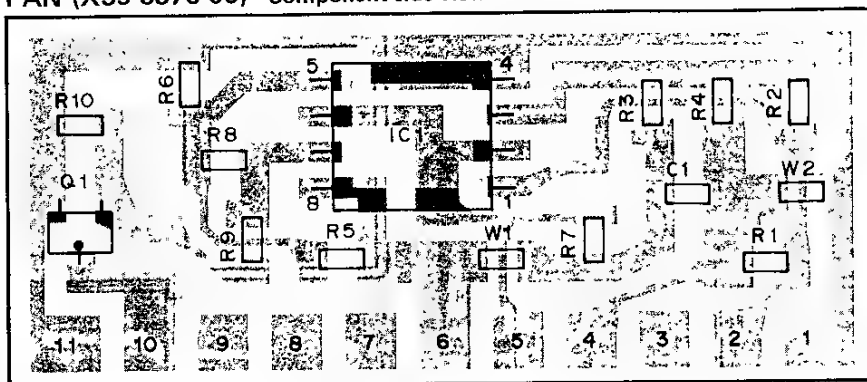
FINAL UNIT (X45-3100-XX) -00 : TS-680S -11 : TS-140S Component side view



Q1 . 2SC1971 Q2,3 2SC2509 Q4,5 2SC2879 Q6,7 2SD1406(Y) Q8,9 AN7805
D1 . MV-5T D2,3 SV 03YS D4,5 1S1555 D6 . SG-5LR D7 MTZ8.2JA
TH1 5TP41L

K1, D4, CN4, 50D : TS-680S only
W2, 3 : TS-140S only

FAN (X59-3370-00) Component side view



Q1 . 2SC2712(Y)
IC1 NJM4558M

FOR SERVICE MANUALS
CONTACT:

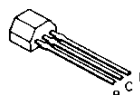
MAURITRON TECHNICAL SERVICES

www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

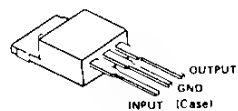
M57735



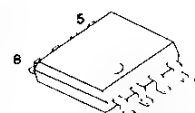
2SC2459



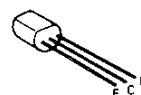
AN7805



NJM4558M



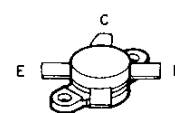
2SC1971



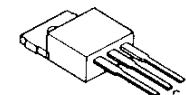
2SC2712(Y)



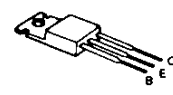
2SC2879



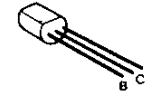
2SD1406



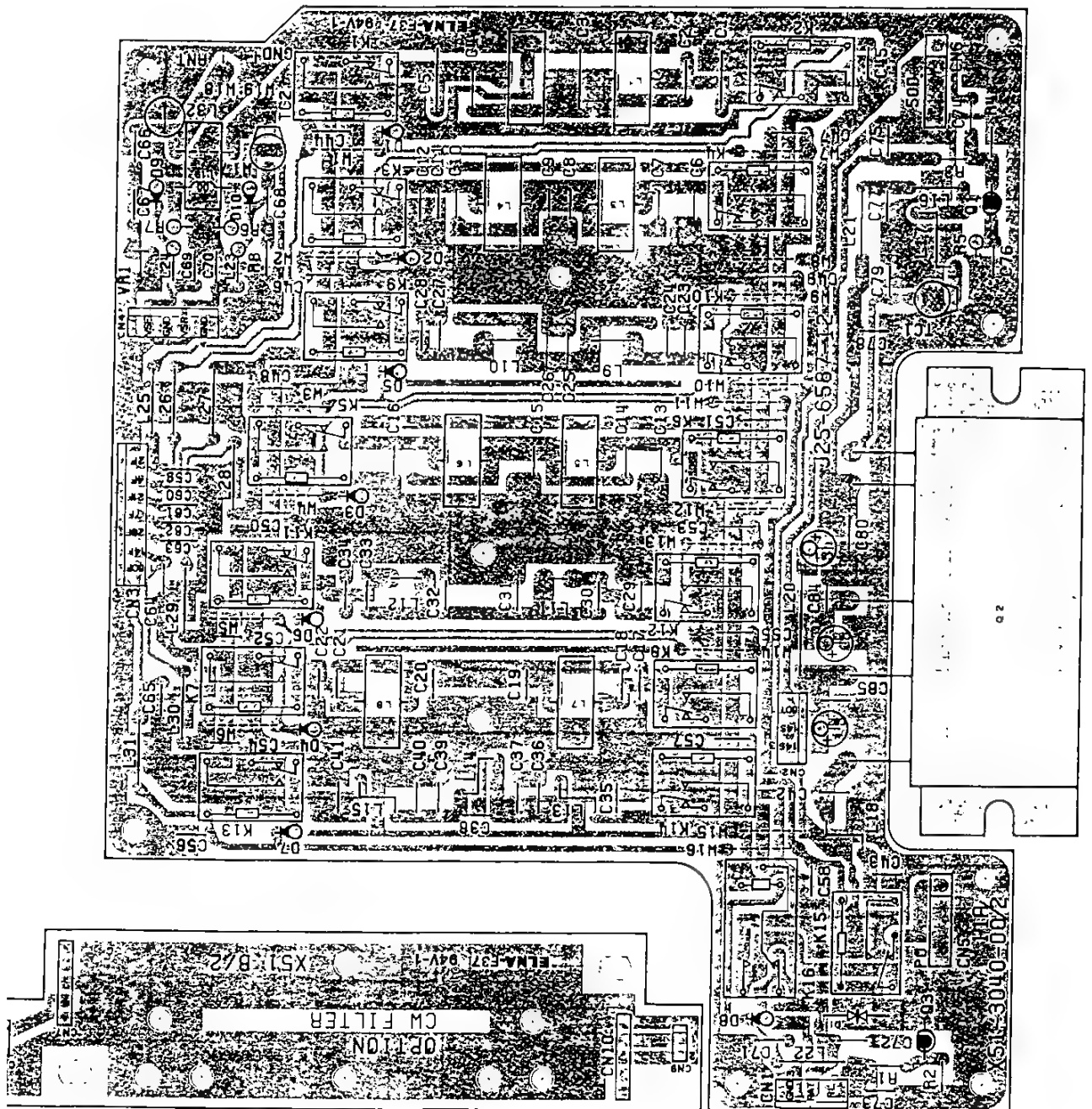
2SC2509



2SC2538-22-A



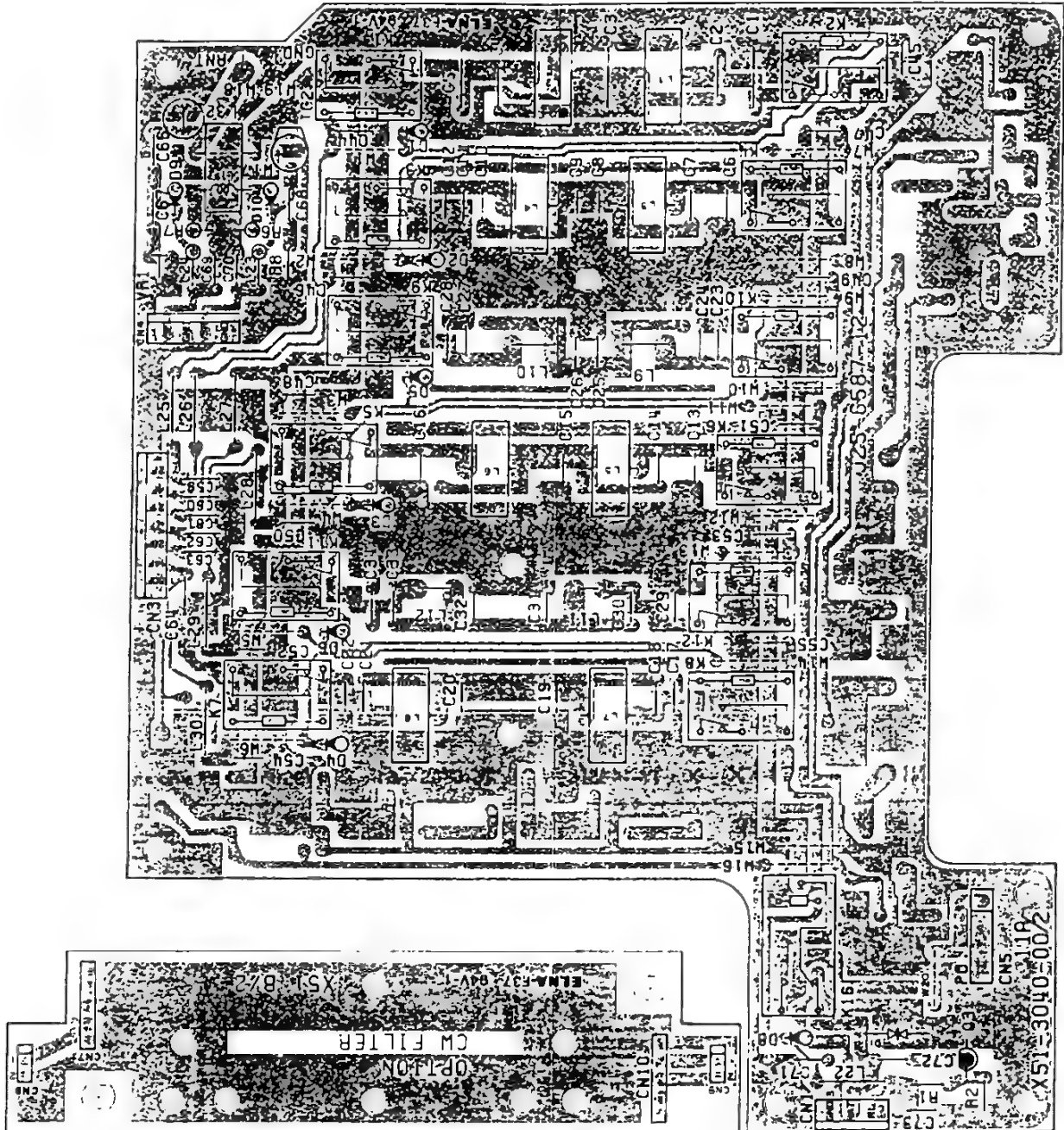
FILTER UNIT (X51-3040-00) : TS-680S Component side view



. 2SC2538-22-A Q2 M57735 Q3 2SC2459(BL)
B 1S1555 D9,10 1S5101 D11 DSP301N

PC BOARD VIEWS TS-140S/680S

FILTER UNIT (X51-3040-11) : TS-140S Component side view

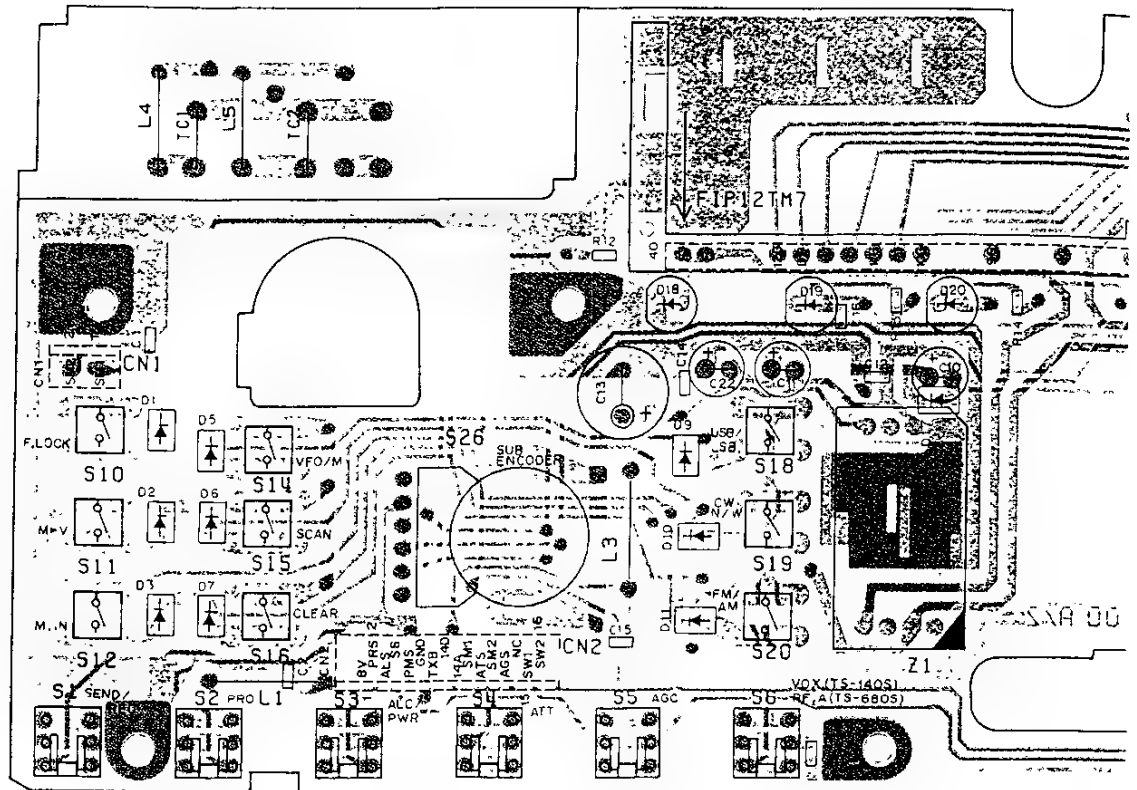


Q3 2SC2459(BL)
D1-6,8 1S1555 D9,10 1S101 D11 OSP301N

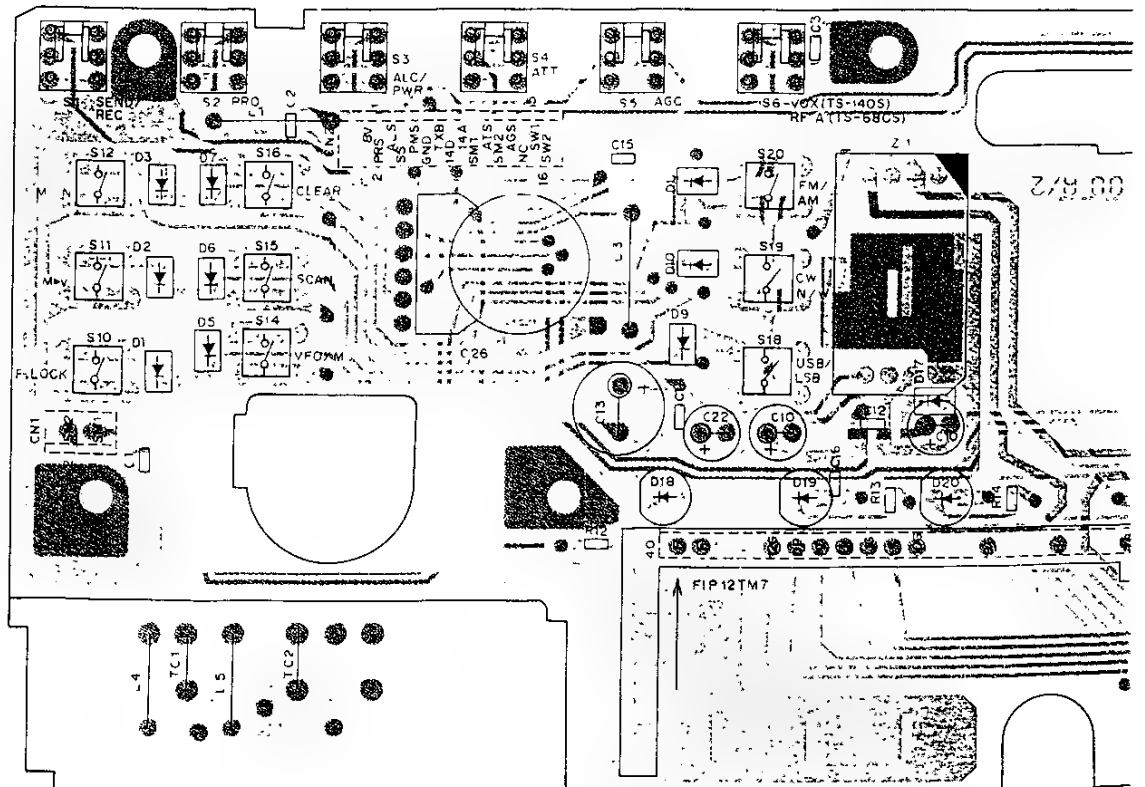
FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

TS-140S/680S PC BOARD VIEWS

DISPLAY UNIT (X54-3050-XX) -00 : TS-140S(K, M, T), TS-680S -61 : TS-140S(W) Component side

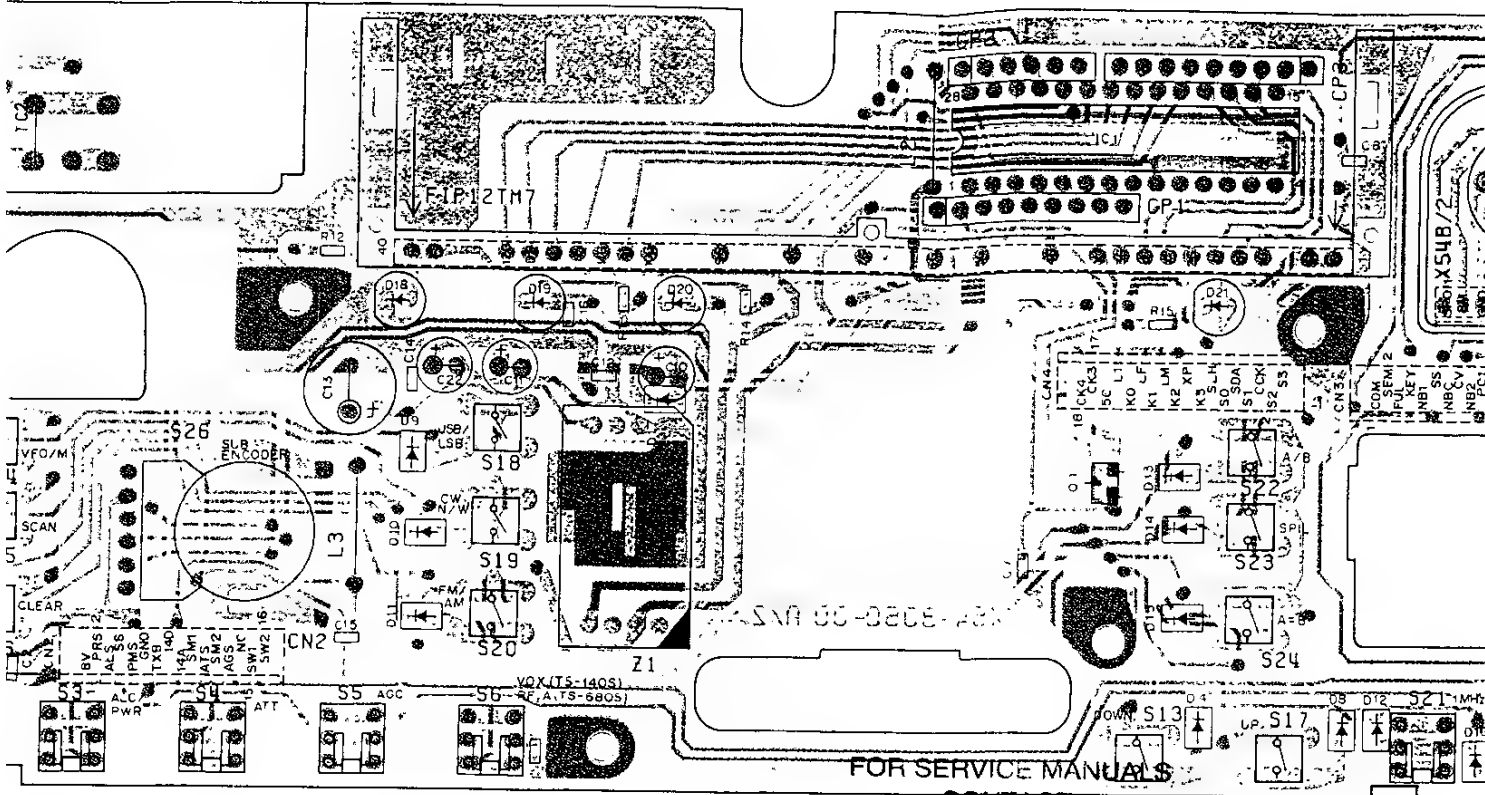


DISPLAY UNIT (X54-3050-XX) -00 : TS-140S(K, M, T), TS-680S -61 : TS-140S(W) Foil side view



PC BOARD VIEWS

-3050-XX) -00 : TS-140S(K, M, T), TS-680S -61 : TS-140S(W) Component side view



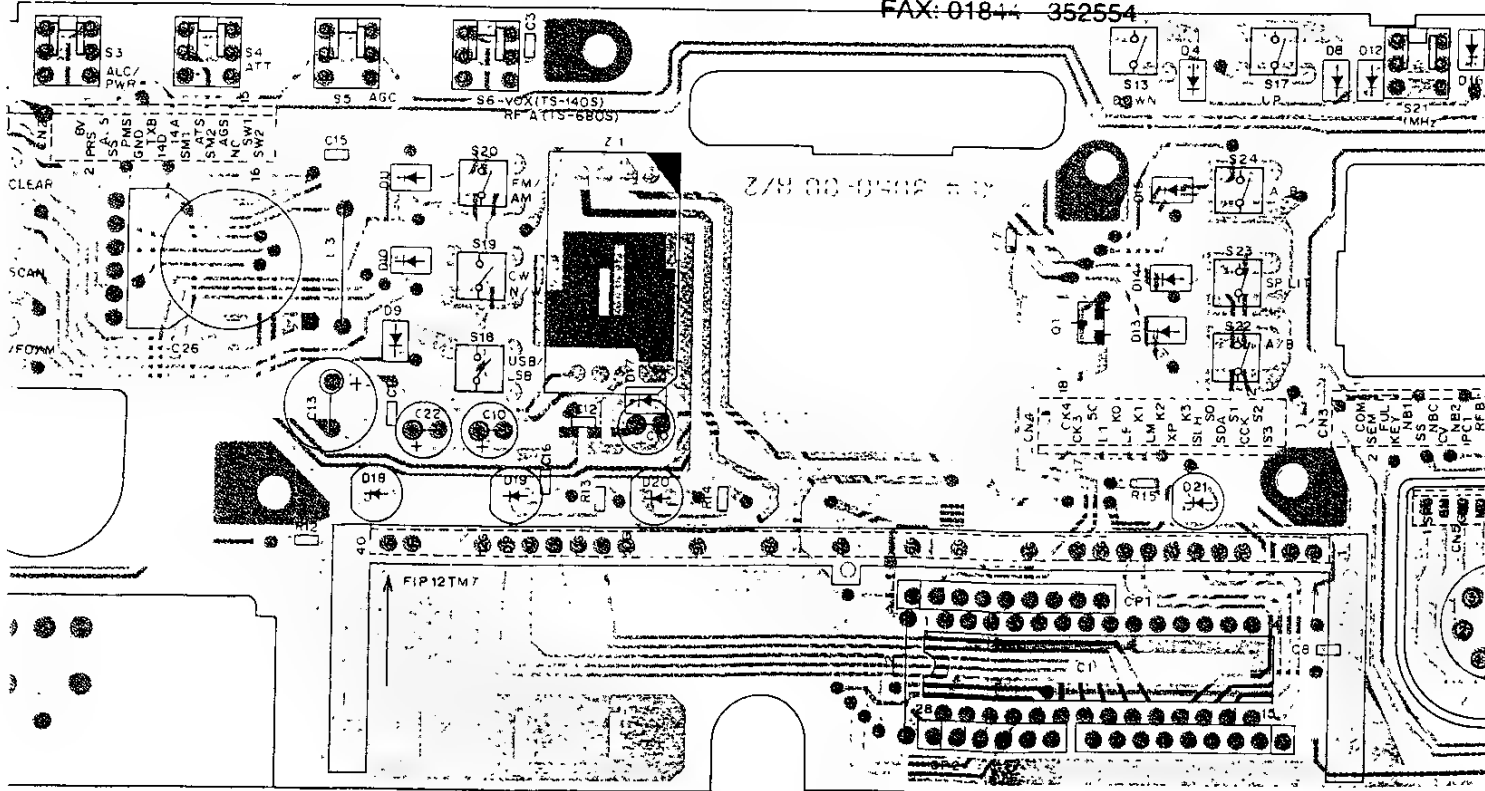
CONTACT:
MAURITRON TECHNICAL SERVICES

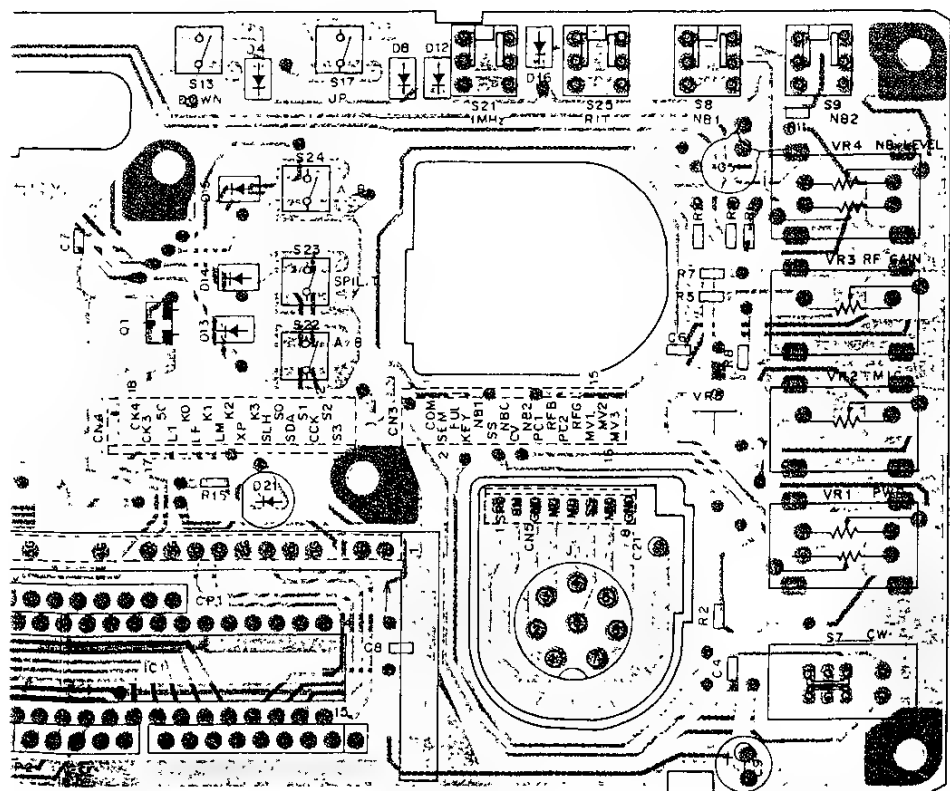
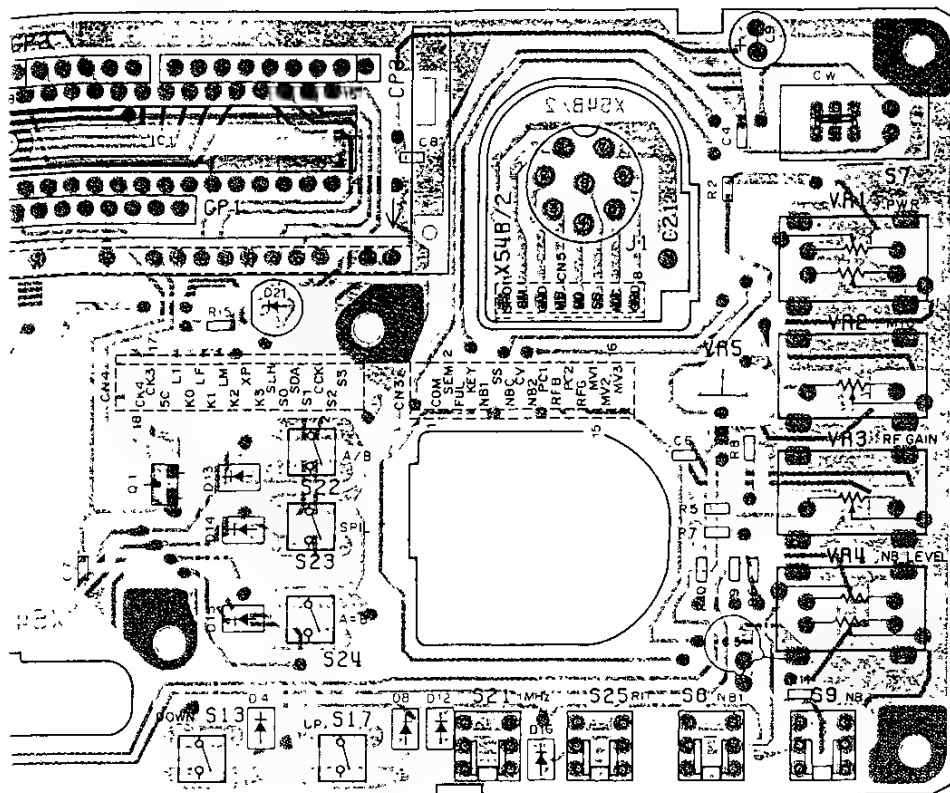
www.mauritron.co.uk

TEL: 01844 - 351694

~~FAX: 01844 352554~~

3050-XX) -00 : TS-140S(K, M, T), TS-680S -61 : TS-140S(W) Foil side view

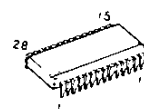




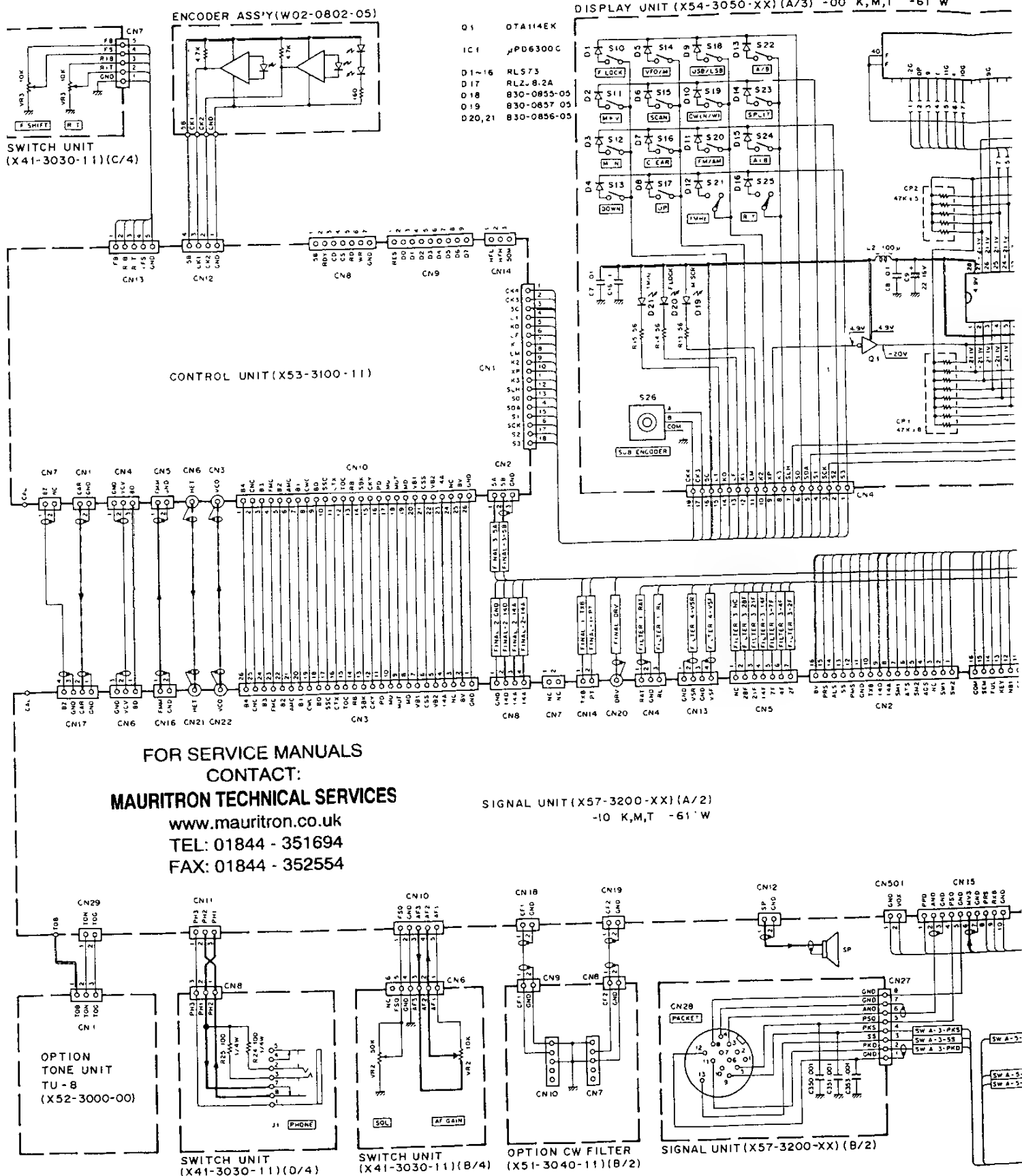
DTA114EK

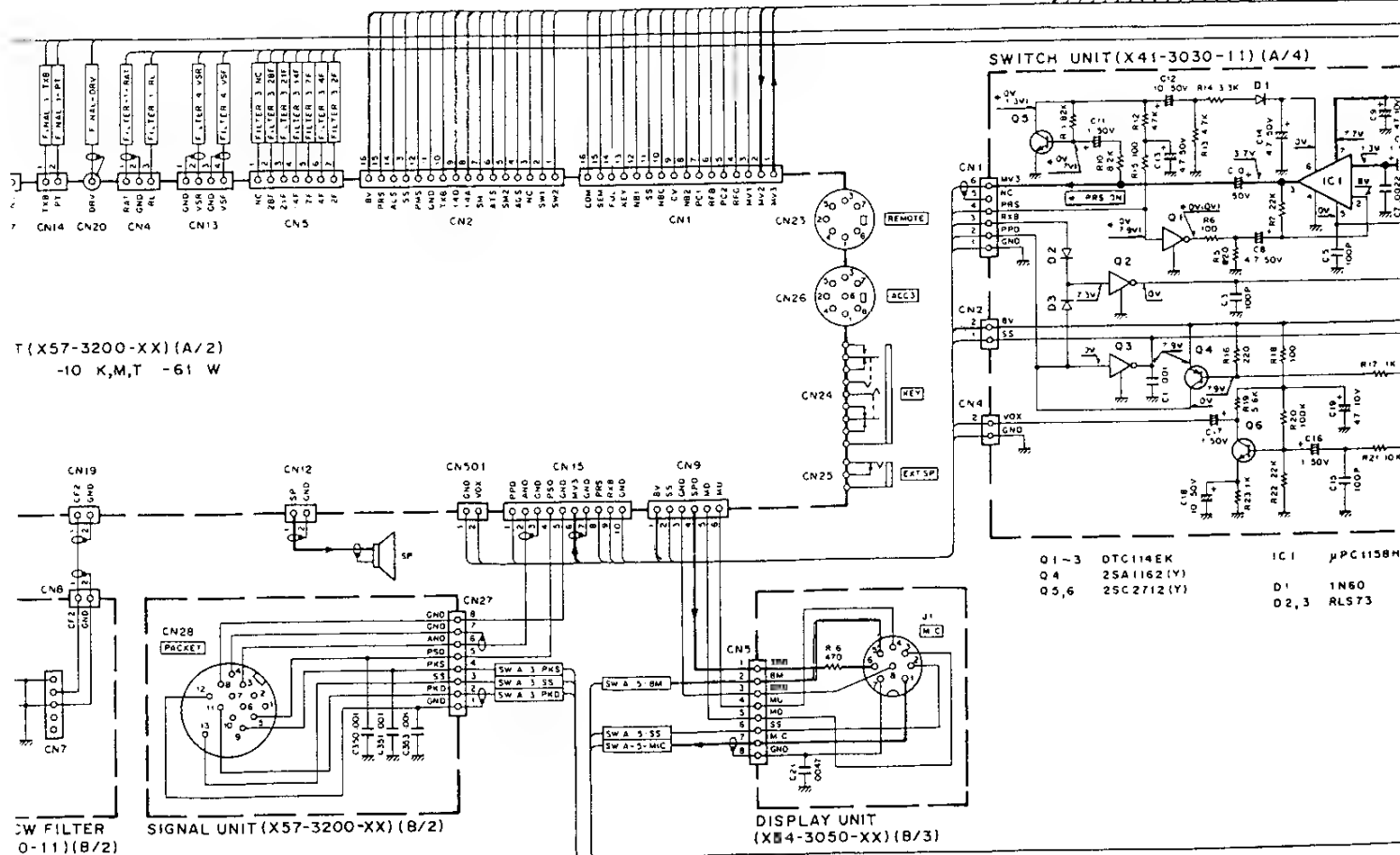
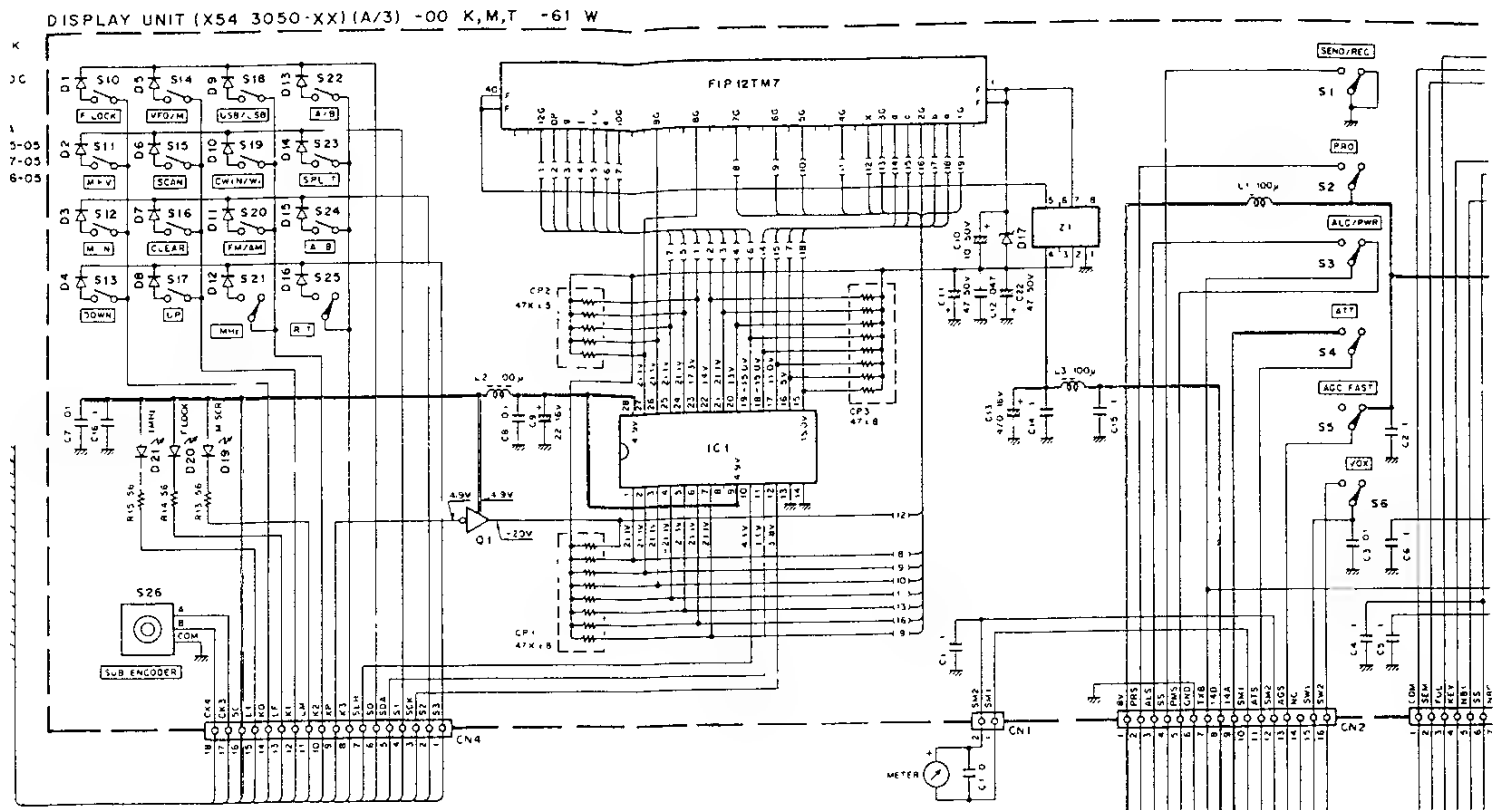


μPD6300C



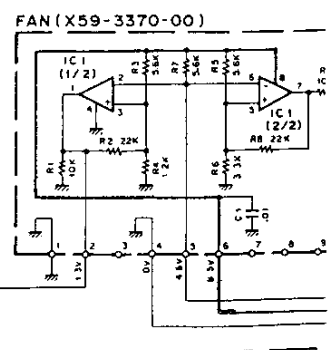
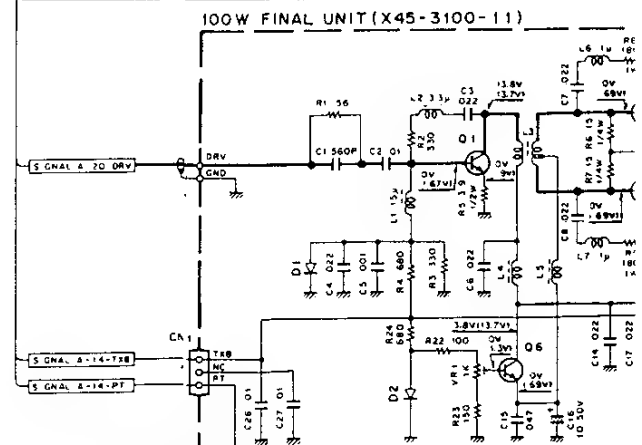
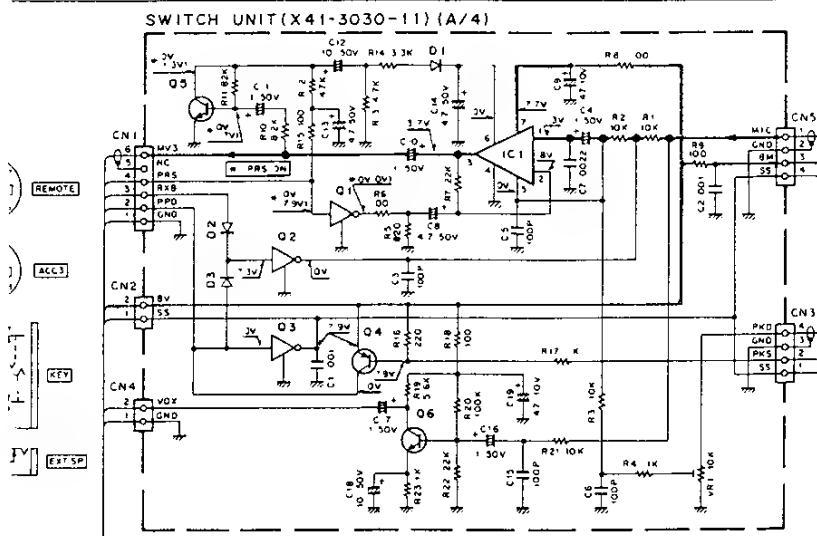
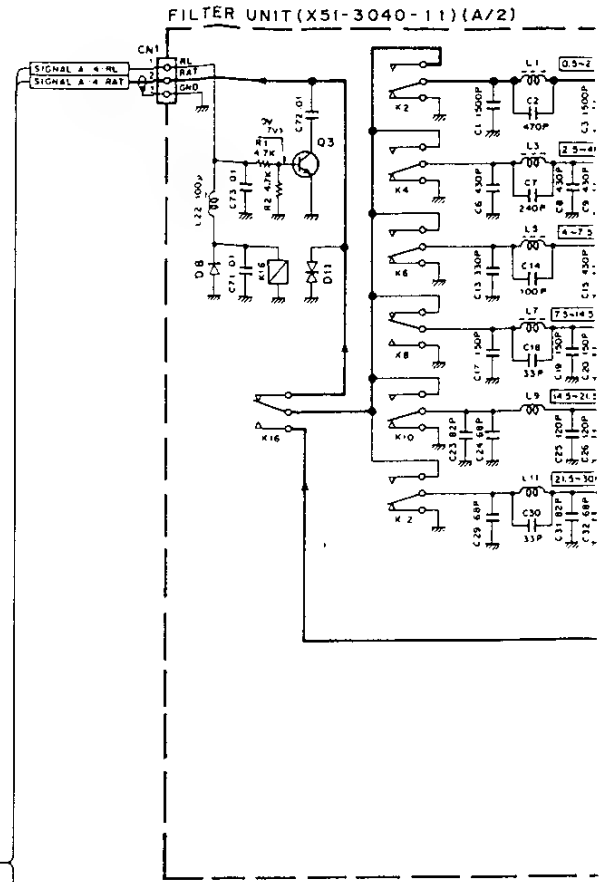
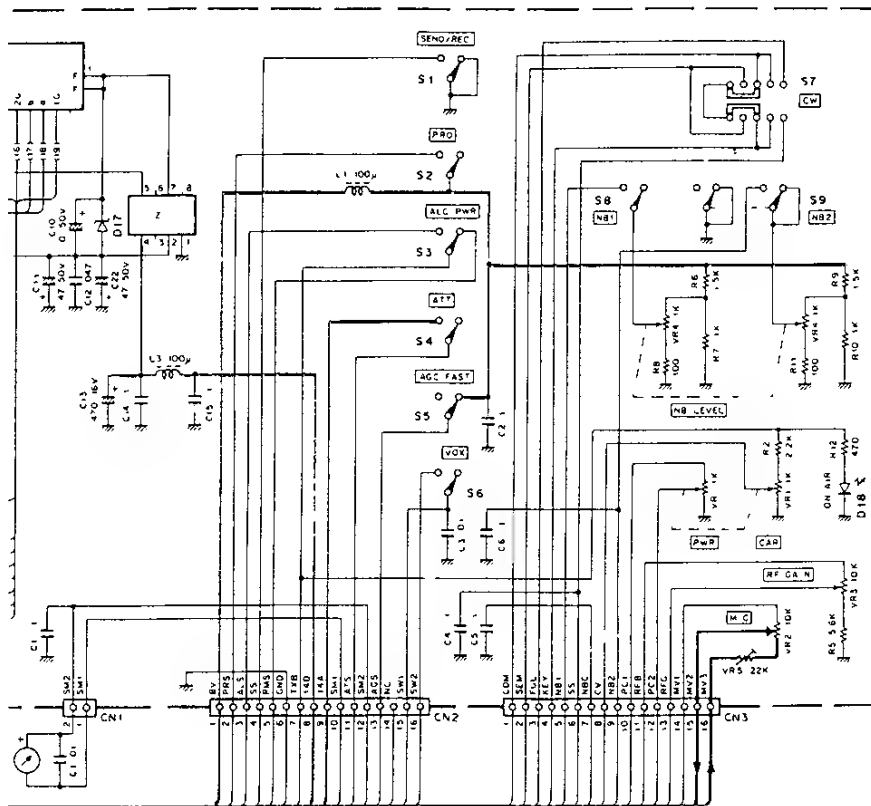
Signal line ——— Control line ——— Common DC line





SCHEMATIC DIAGRAM (TS-140S)

Voltage measu



Q1~3 DTC114EK
Q4 2SA1162(Y)
Q5,6 2SC2712(Y)

IC1 μ PC1158H2
D1 1N60
D2,3 RLS73

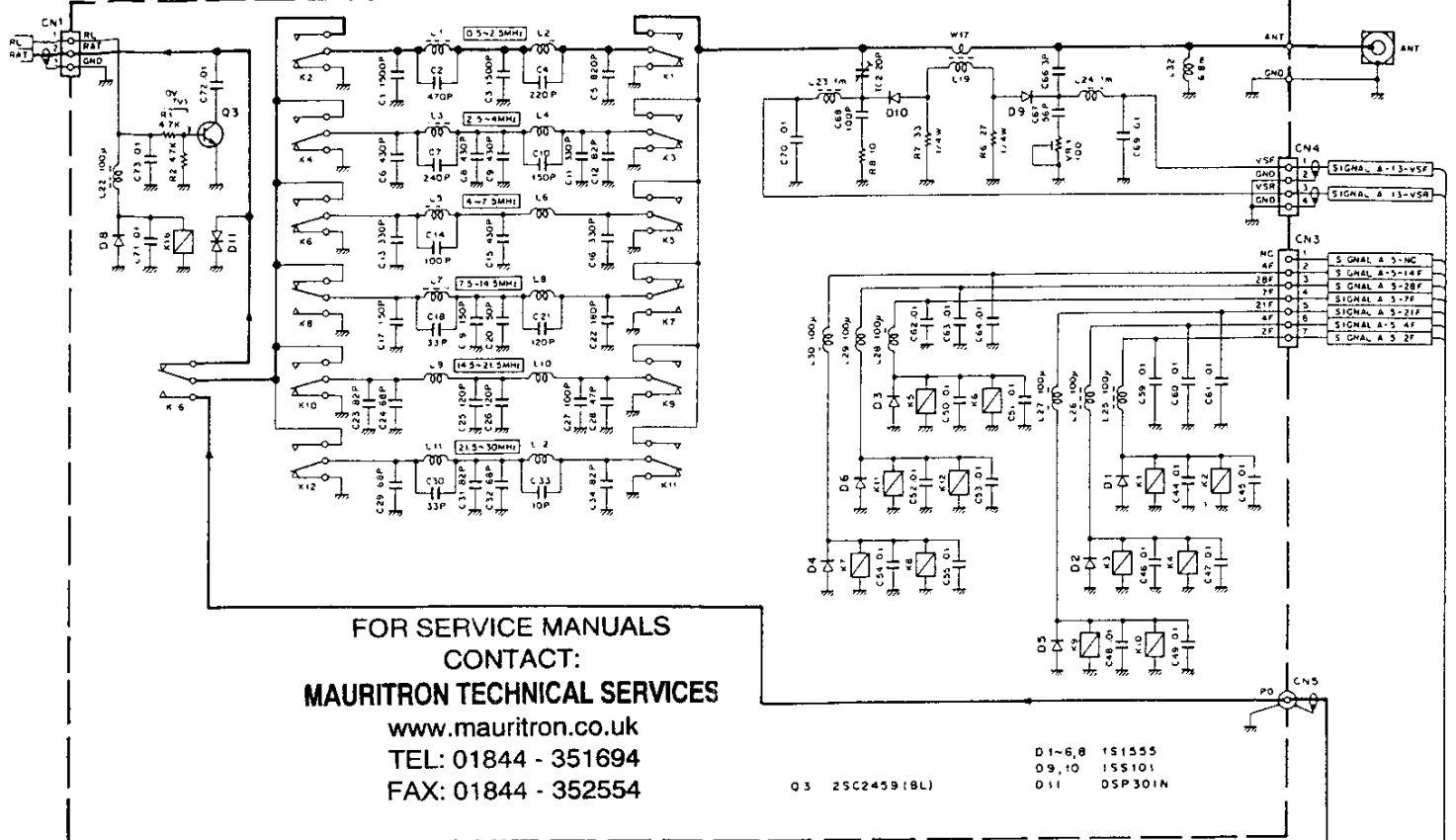
FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

x) (B/3)

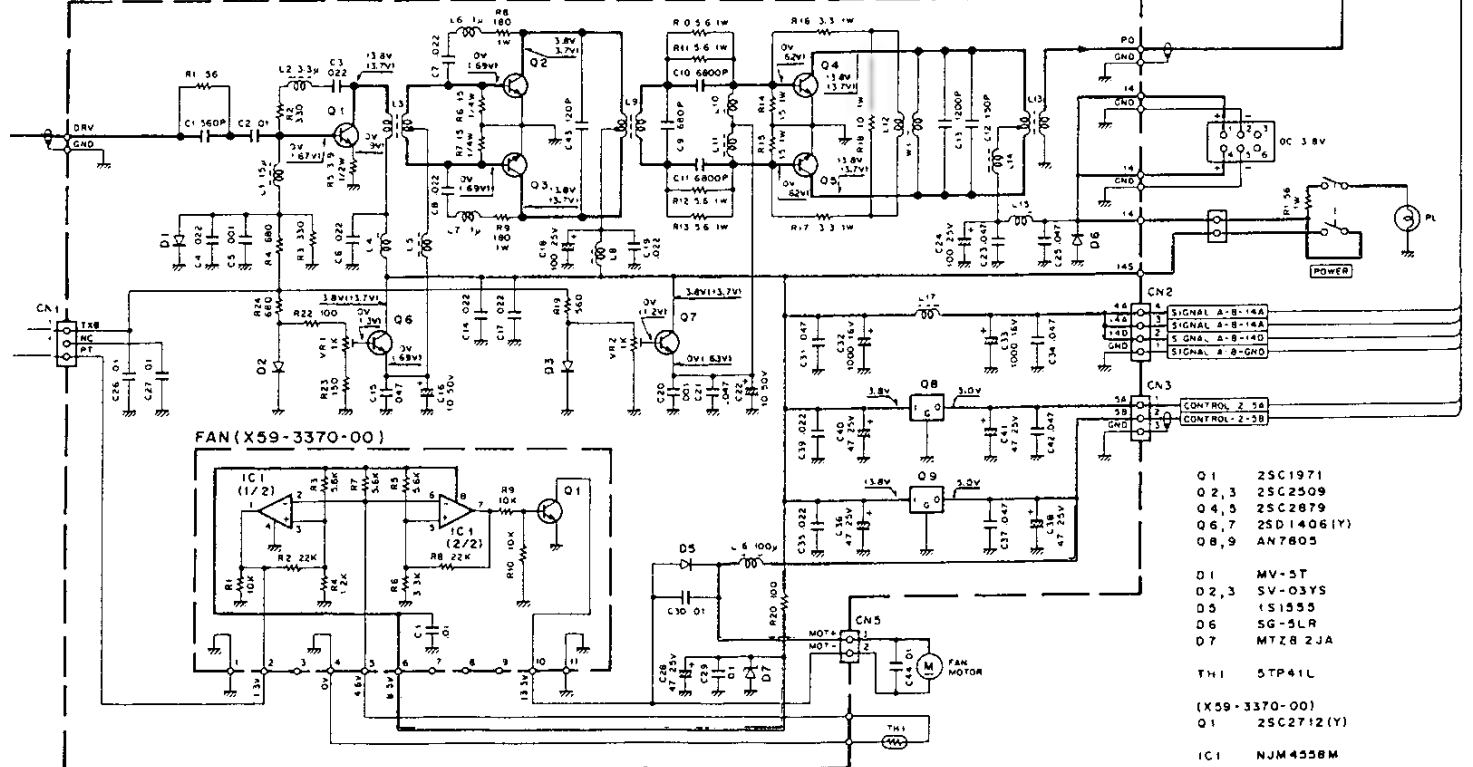
Voltage measurement condition $f = 14\text{MHz}$. SSB MIC GAIN MIN.
Mode : USB. () : TX.

TS-140S/680S

FILTER UNIT (X51-3040-11) (A/2)



100W FINAL UNIT (X45-3100-11)

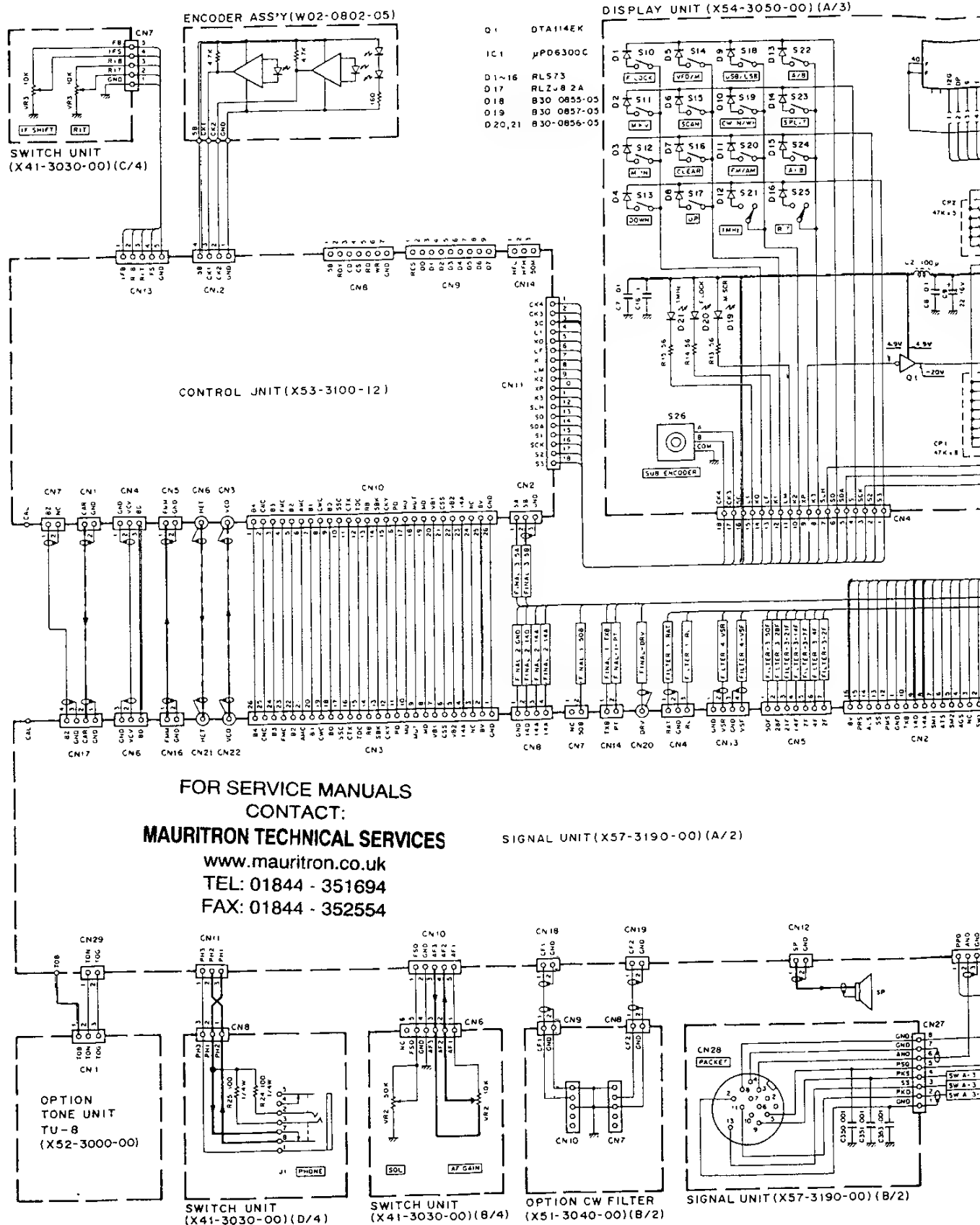


TS-140S/680S

Signal line

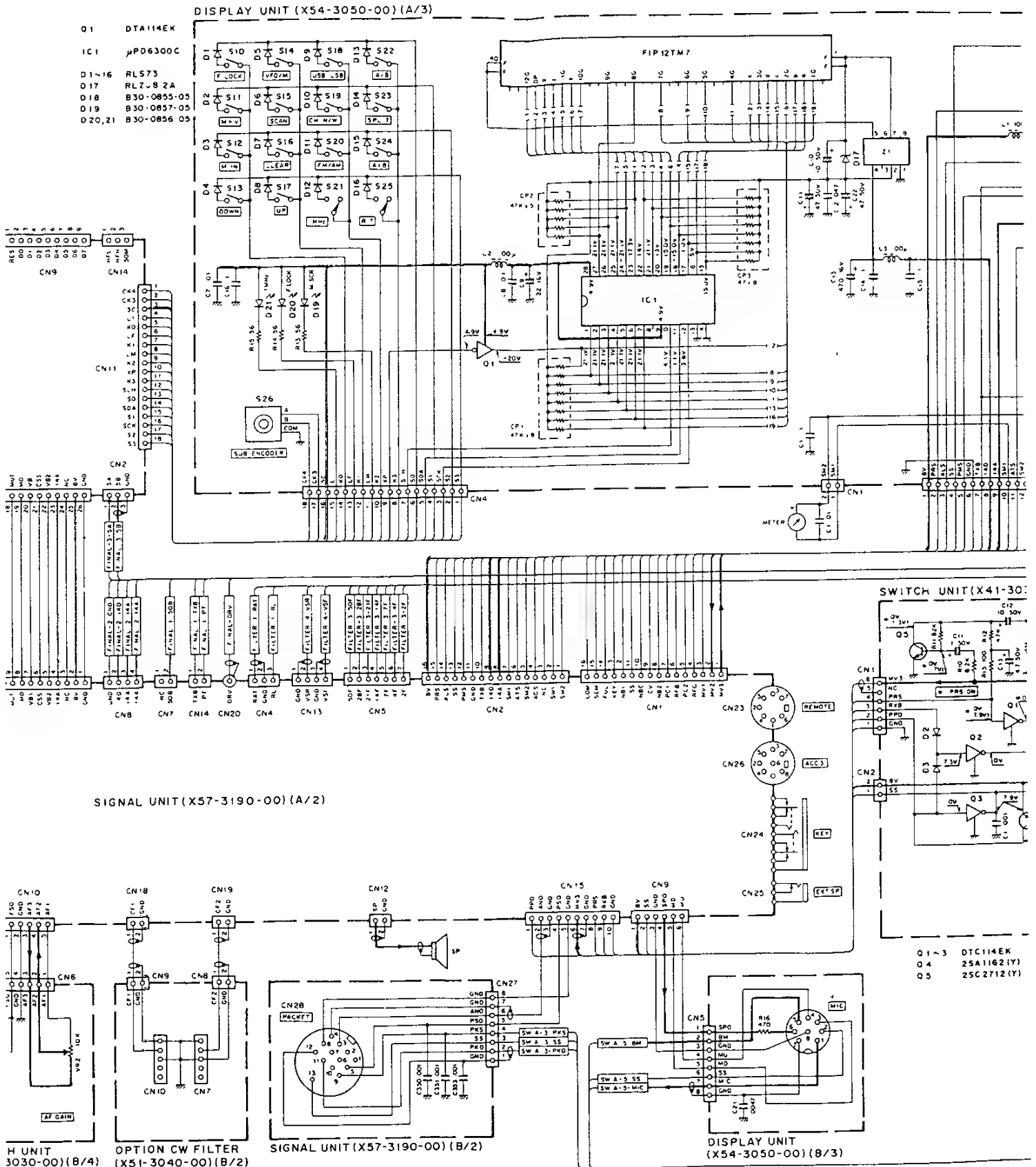
Control line

Common DC line



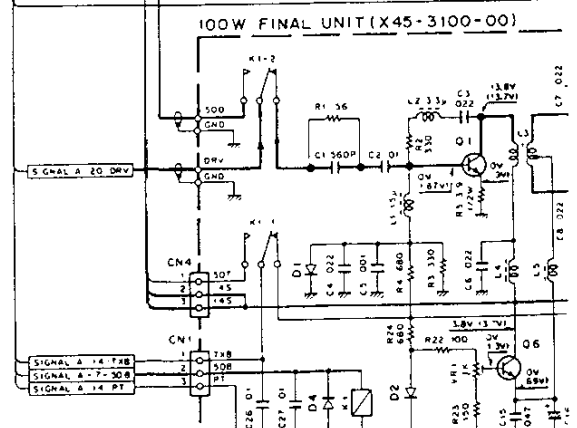
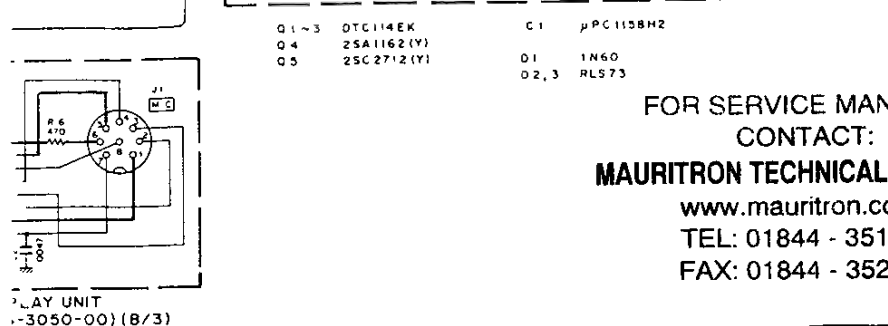
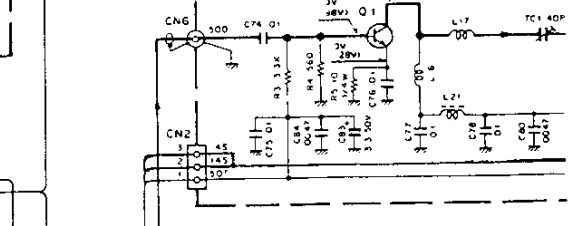
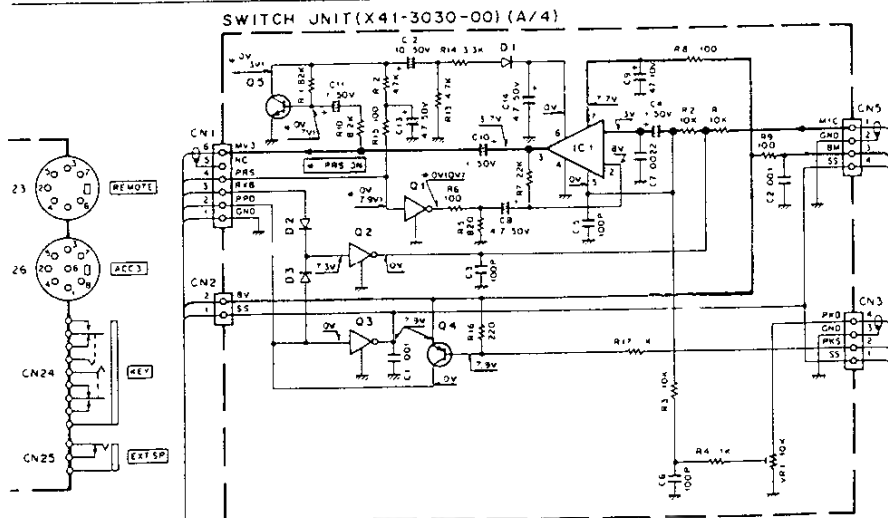
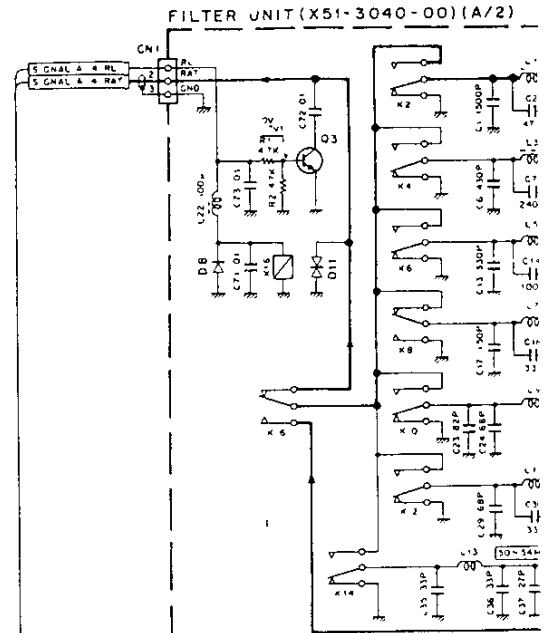
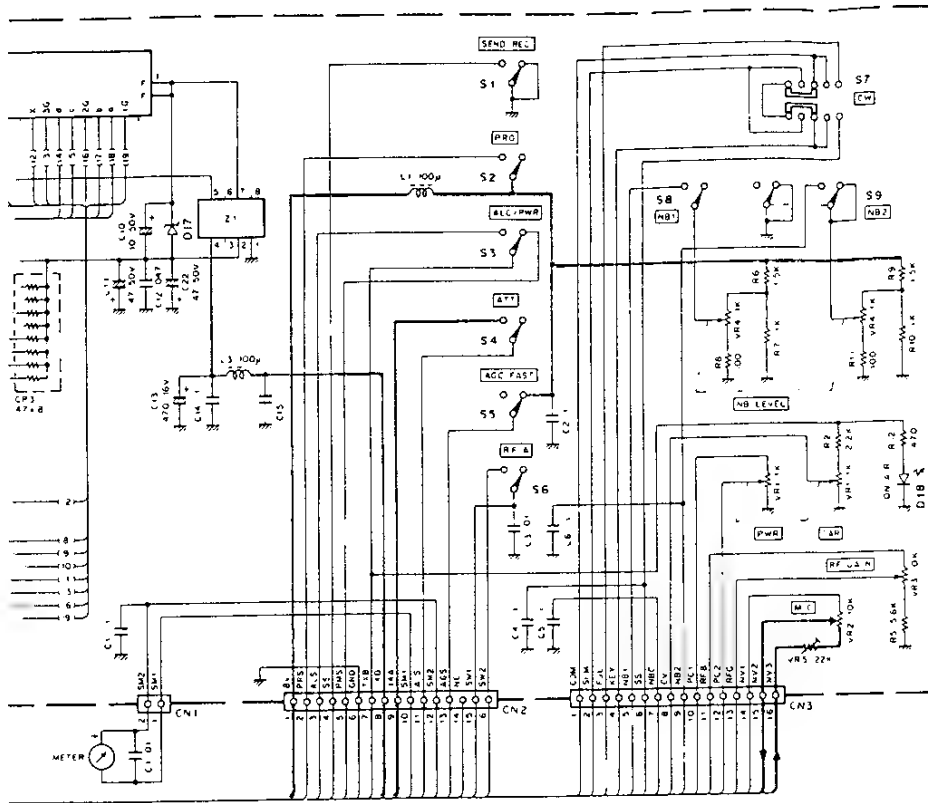
SCHEMATIC DIAG

— Signal line — Control line — Common DC line



SCHEMATIC DIAGRAM (TS-680S)

Volt

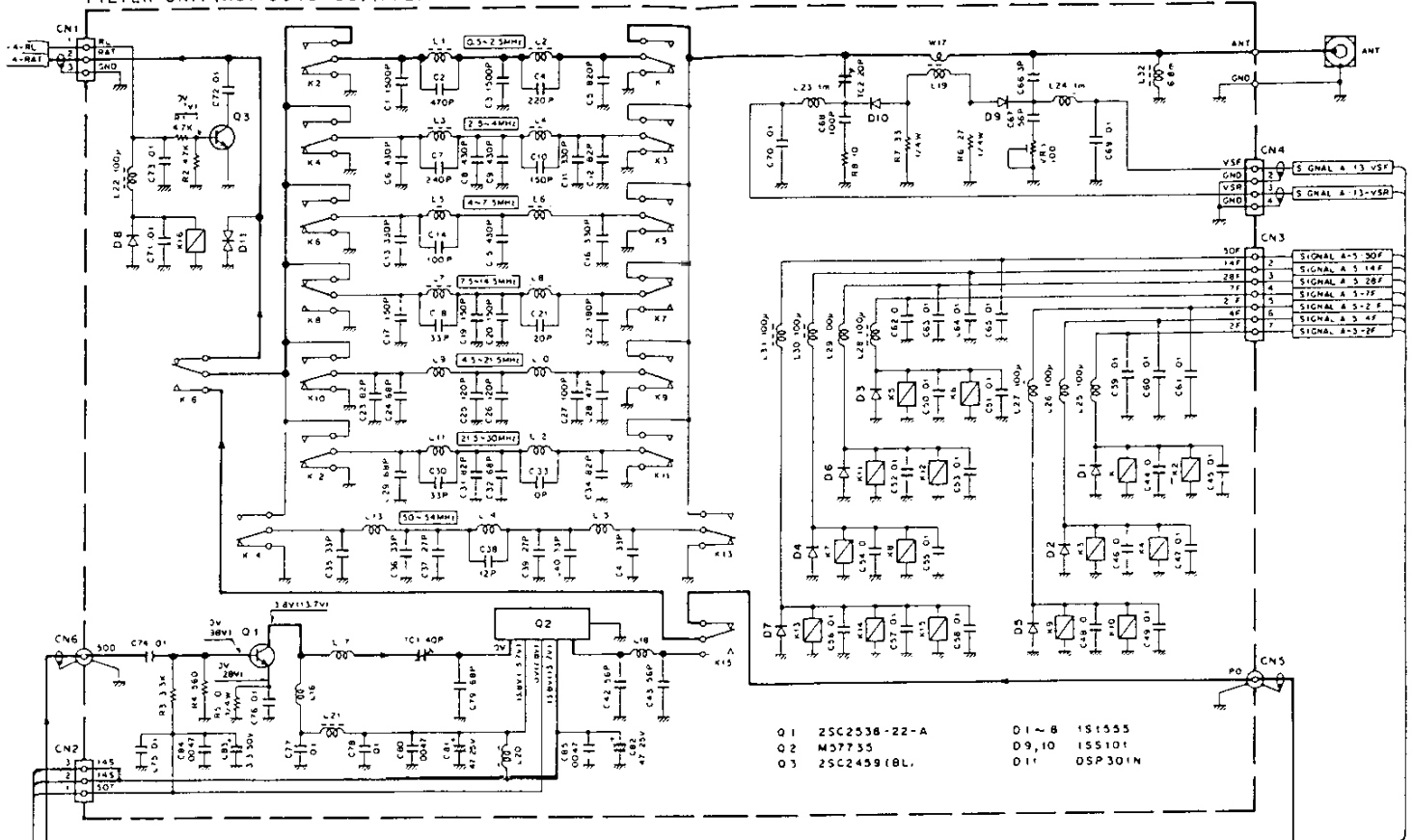


Q1~3 0TC114EK
Q4 2SA1162(Y)
Q5 2SC2712(Y)
C1 μ PC1158H2
D1 1N60
D2,3 RL573

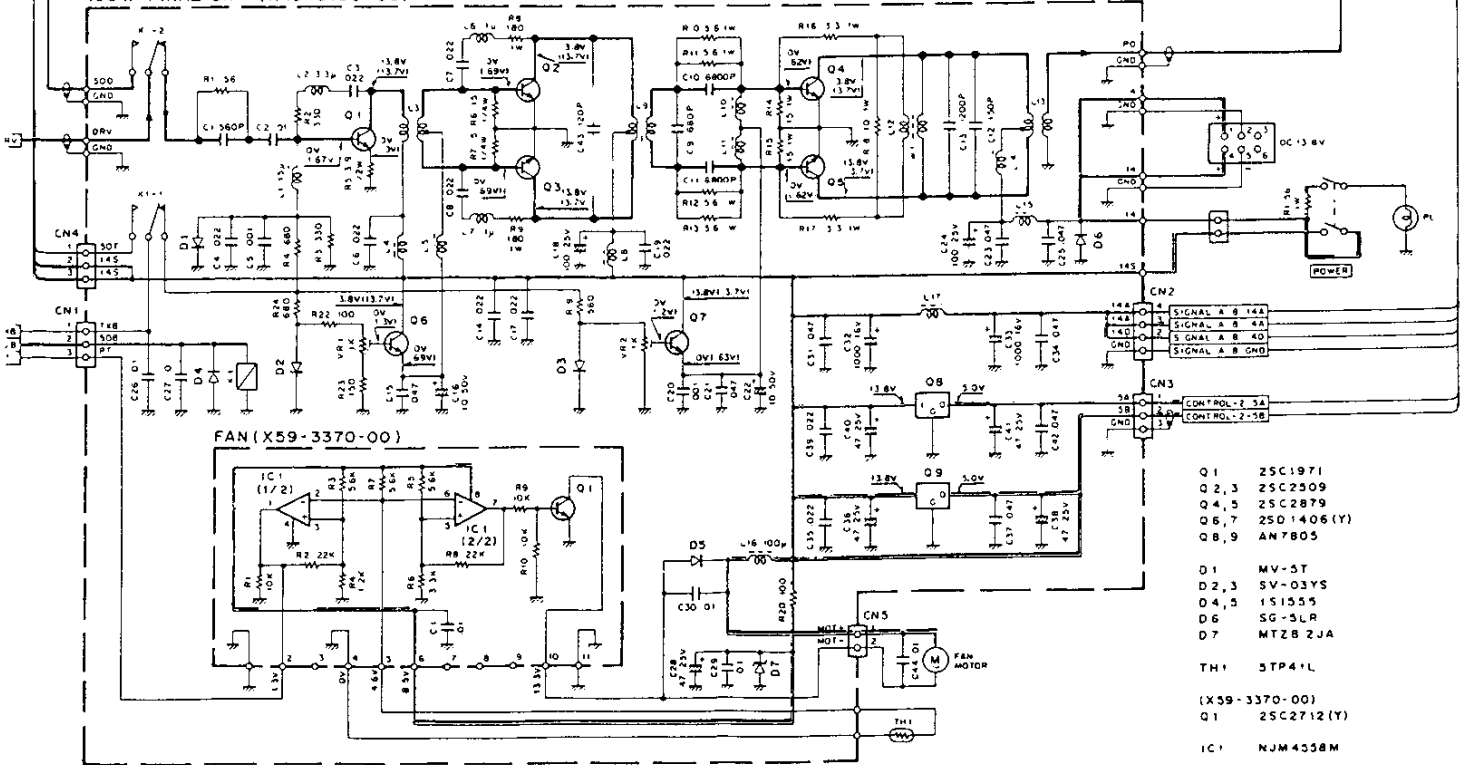
FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

Voltage measurement condition FILTER UNIT : f=52MHz, FINAL UNIT : f=14MHz, SSB MIC GAIN.
SWITCH UNIT, DISPLAY UNIT : f=14MHz, Mode : USB. () : TX.

FILTER UNIT(X51-3040-00)(A/2)

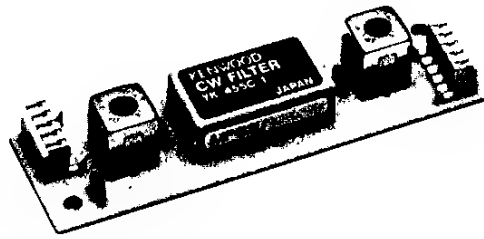


100W FINAL UNIT(X45-3100-00)



TK-455C-1 (CW FILTER)

YK-455C-1 EXTERNAL VIEW



YK-455C-1 ELECTRICAL CHARACTERISTICS

Item	Rating
Nominal center frequency (f ₀)	455kHz
Center frequency deviation	Within ± 0.1 kHz at 6dB
6dB pass bandwidth (BW)	± 0.25 kHz or more
60dB attenuation bandwidth	± 1.1 kHz or less
ripple	3dB or less at ± 0.1 kHz ± 0.2 kHz
insertion loss	8 dB or less
Stop attenuation	70dB or more at within ± 60 kHz
I/O terminating impedance	$2k\Omega \pm 5\%$

FOR SERVICE MANUALS

CONTACT:

MAURITRON TECHNICAL SERVICES

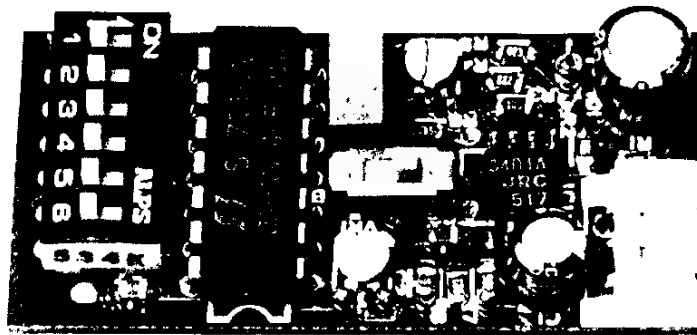
www.mauritron.co.uk

TEL: 01844 - 351694

FAX: 01844 - 352554

TU-8 (TONE UNIT)

TU-8 EXTERNAL VIEW



TU-8 SPECIFICATIONS

Frequency range	38CH in 67.0 - 250.3Hz and 1750Hz, 1800Hz
Frequency Deviation	Within $\pm 0.5\%$
Max. Output Power	2.0Vrms $\pm 5\%$ at 1800Hz/1.5k Ω
Operating temperature	-20°C to +60°C
Power Supply Voltage	8V $\pm 5\%$
Semi-conductors	ICs . 2 Diode . 1
Weight	Approx. 10 grams
Dimensions	45 mm W 22 mm D 8 mm H (without cushion, etc.)

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

TU-8 (TONE UNIT)

TU-8 CIRCUIT DISCRIPTION

The TU-8 is a tone unit designed for the repeater operation of the TS-140S/680S

• Outline

1. A six position DIP switch (Fig. 1) has been provided to allow selection of the desired tone frequency, 40 different frequencies are available (See Table 1.). Use the DIP switch and Table 1 to select the desired tone frequency.

Freq. (Hz)	P1	P2	P3	P4	P5	P6	Freq. (Hz)	P1	P2	P3	P4	P5	P6
67.0	1	0	0	0	0	0	136.5	1	0	1	0	1	0
71.9	0	1	0	0	0	0	141.3	0	1	1	0	1	0
74.4	1	1	0	0	0	0	146.2	1	1	1	0	1	0
77.0	0	0	1	0	0	0	151.4	0	0	0	1	1	0
79.7	1	0	1	0	0	0	156.7	1	0	0	1	1	0
82.5	0	1	1	0	0	0	162.2	0	1	0	1	1	0
85.4	1	1	1	0	0	0	167.9	1	1	0	1	1	0
88.5	0	0	0	1	0	0	173.8	0	0	1	1	1	0
91.5	1	0	0	1	0	0	179.9	1	0	1	1	1	0
94.8	0	1	0	1	0	0	186.2	0	1	1	1	1	0
97.4	1	1	0	1	0	0	192.8	1	1	1	1	1	0
100.0	0	0	1	1	0	0	203.5	0	0	0	0	0	1
103.5	1	0	1	1	0	0	210.7	1	0	0	0	0	1
107.2	0	1	1	1	0	0	218.1	0	1	0	0	0	1
110.9	1	1	1	1	0	0	225.7	1	1	0	0	0	1
114.8	0	0	0	0	1	0	233.6	0	0	1	0	0	1
118.8	1	0	0	0	1	0	241.8	1	0	1	0	0	1
123.0	0	1	0	0	1	0	250.3	0	1	1	0	0	1
127.3	1	1	0	0	1	0	1750.0	1	1	1	1	0	1
131.8	0	0	1	0	1	0	1800.0	0	0	0	0	1	1

(1 ON 0 OFF)

Table 1 Program

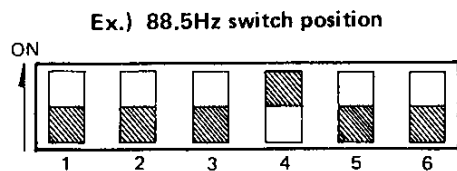


Fig. 1 DIP Switch

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

TU-8 ADJUSTMENT

• Deviation adjustment

The TU-8 has been present at factory for $\pm 600\text{Hz}$. The deviation is adjusted by with VR1 to Max. $\pm 2\text{kHz}$ with the deviation potentiometer full clockwise when the TU-8 is installed on the TS-140S/680S.

- *1
 - *2
2. Tone-burst or continuous tone selection .
A switch is provided to allow selection of either the tone-burst or continuous tone mode.
The burst duration can be adjusted by with VR2

*1 Tone-burst mode :

A tone will be generated for a brief period at the beginning of each transmission.

*2 Continuous-tone mode :

A tone will be generated as long as the PTT switch is depressed. Since the tone is adjusted for a sub-audible level, this should not interfere with normal communications.

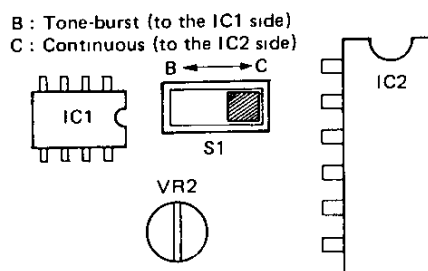


Fig. 2 Tone-burst or continuous-tone selection switch

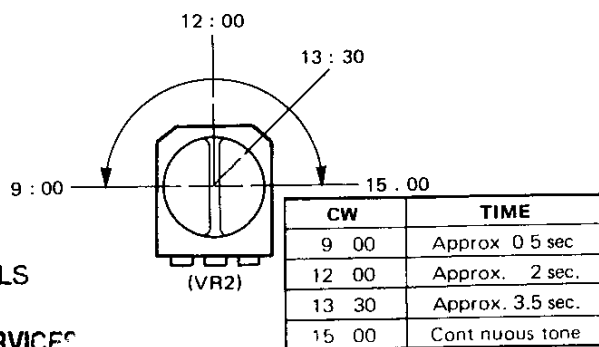


Table 2

Fig. 3 Burst time adjustment

TU-8 (TONE UNIT)

× New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis

Teile ohne Parts No. werden nicht geliefert

TU-8 PARTS LIST

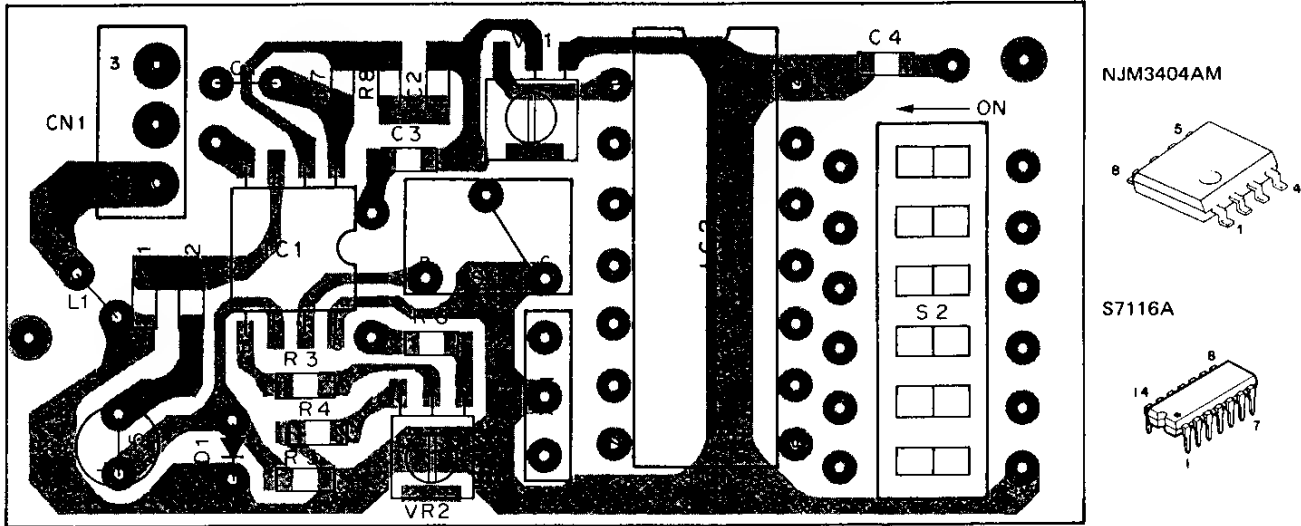
Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
TU-8						
-		+	X52-3000-00	TONE UNIT		
TONE UNIT (X52-3000-00)						
C1			CE04CW1A220M	ELECTR0 220F 10WV		
C2 -4			CK73FB1E103K	CHIP C 0.010UF K		
C5			CE04CW1A470M	ELECTR0 47UF 10WV		
C6			CC45SL1H102J	CERAMIC 1000PF J		
L1			L40-2211-17	SMALL FIXED INDUCTOR		
X1			L78-0018-05	CERAMIC OSCILLATOR (3.58MHZ)		
R1 .2			RK73FB2A105J	CHIP R 1.0M J 1/10W		
R3			RK73FB2A103J	CHIP R 10K J 1/10W		
R4			RK73FB2A222J	CHIP R 2.2K J 1/10W		
R5			RK73FB2A473J	CHIP R 47K J 1/10W		
R6			RK73FB2A682J	CHIP R 6.8K J 1/10W		
R7			RK73FB2A105J	CHIP R 1.0M J 1/10W		
R8			RK73FB2A823J	CHIP R 82K J 1/10W		
VR1 .2		*	R12-4418-05	TRIMMING PBT (50K)		
S1			S31-1411-05	SLIDE SWITCH (3P)		
S2		*	S59-6401-05	DIP SWITCH (SSGM16 6P)		
D1			1SS133	DIODE		
IC1		*	NJM3404AM	IC(OP AMP X2)		
IC2			S7116A	IC(TONE ENCODER)		

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

TU-8 (TONE UNIT)

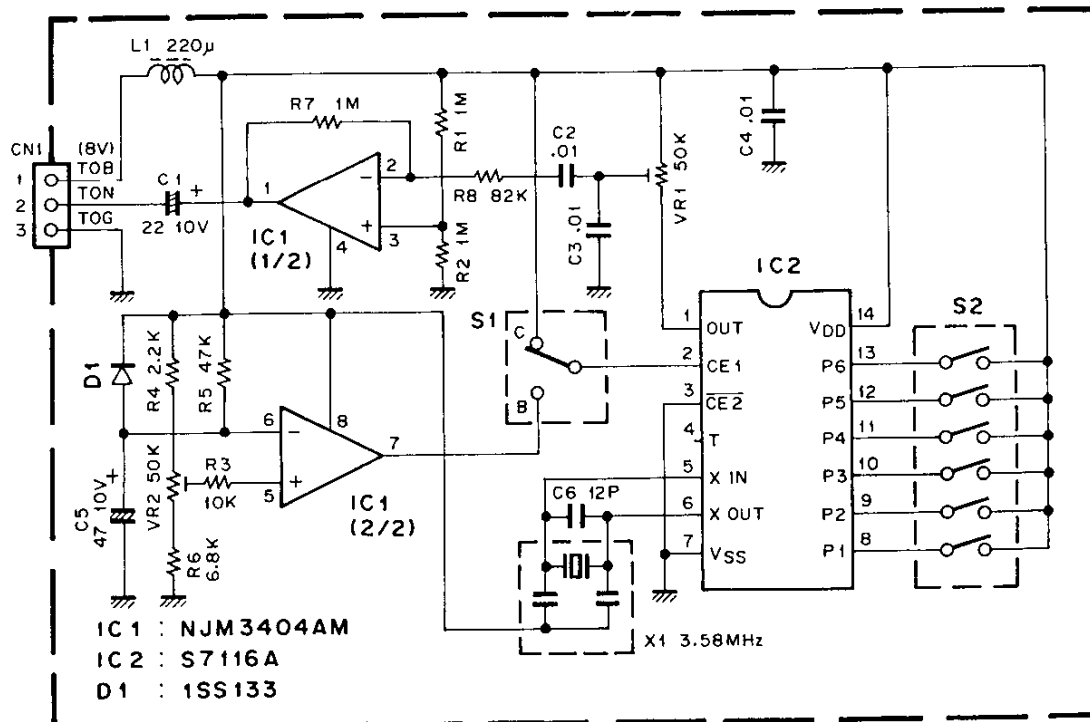
TU-8 PC BOARD VIEW

TONE UNIT (X52-3000-00) Component side view



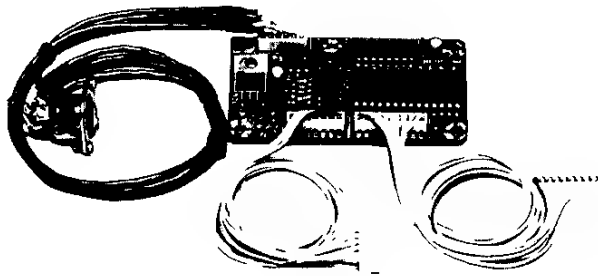
TU-8 SCHEMATIC DIAGRAM

TONE UNIT (X52-3000-00)



IF-10C (INTERFACE KIT)

IF-10C EXTERNAL VIEW



IF-10C SPECIFICATIONS

Power requirement	DC 5.0V (4.5 ~ 5.5V)
Current drain	100mA
Interface signal level	
Output signal	"L" level 0 ~ 0.4V
	"H" level 2.4 ~ 5V
Input signal	"L" level 0 ~ 0.8V
	"H" level 2 ~ 5V
Operating temperature	-10°C ~ +50°C

IF-10C PARTS LIST

* New Parts

Parts without Parts No. are not supplied

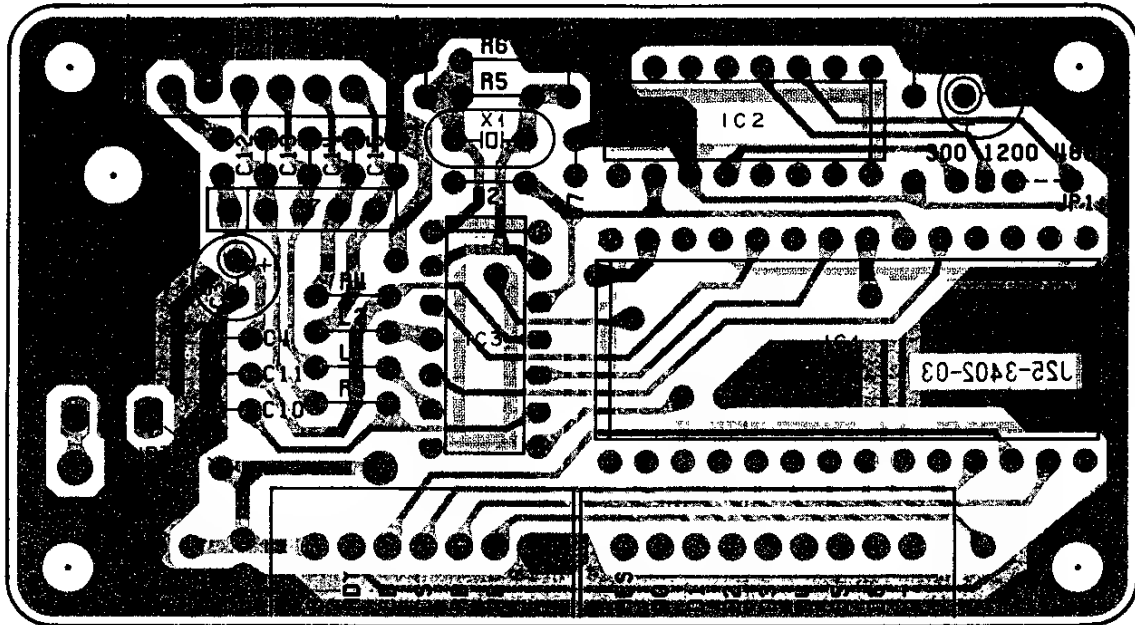
Ref. No.	Address	New Parts	Parts No.	Description	Destination	Remarks
IF-10C						
		*	B42-3317-04 B42-3319-04	Serial plate Plate	K	
			CK45F1H103Z	C 0.01μF Z (DIN)		
		*	E06-0655-05	6P DIN Connector		
		*	E31-3331-05	Connector with lead (DIN)		
		*	E31-3333-05	Connector with lead 7P		
		*	E31-3334-05	Connector with lead 9P		
		*	H13-0804-04	Protection plate		
		*	H25-0711-04	Antistatic bag		
		*	H25-0712-04	Antistatic bag (PC board)		
			J61-0307-05	Wire band		
			N30-2605-41	Pan head screw M2.6 x 5 (DIN)		
			N87-2606-46	Brazier head tap,ete screw φ2.6 x 6		
		*	X57-1160-02	Interface unit		
INTERFACE UNIT (X57-1160-02)						
C3			CE04CW0J470M	Electro 47μF 6.3WV		
C4, 5			C91-0117-05	C 0.01μF		
C6			CE04CW0J470M	Electro 47μF 6.3WV		
C7			C91-0117-05	C 0.01μF		
C8, 9			CK45B1H102K	C 1000pF K		
C10, 15			C91-0117-05	C 0.01μF		
L1, 2			L40-1011-16	Ferrite inductor 100μH		
X1		*	L78-0015-05	Ceramic resonator CSA2 45MG11		
R2			RD14BB2C103J	RD 10K J		
R3, 4			RD14BB2C101J	RD 100 J		
R5			RD14BB2C222J	RD 2.2K J		
R6			RD14BB2C472J	RD 4.7K J		
R7		*	R90-0597-05	Resistor block 1K x 4		
JP1, 3			R92-1061-05	Jumper wire		
IC1		*	μPD8251AFC	IC		
IC2			TC4040BP	IC		
IC3		*	HD7404P	IC		

FOR SERVICE MANUALS
CONTACT:
MAURITRON TECHNICAL SERVICES
www.mauritron.co.uk
TEL: 01844 - 351694
FAX: 01844 - 352554

IF-10C (INTERFACE KIT)

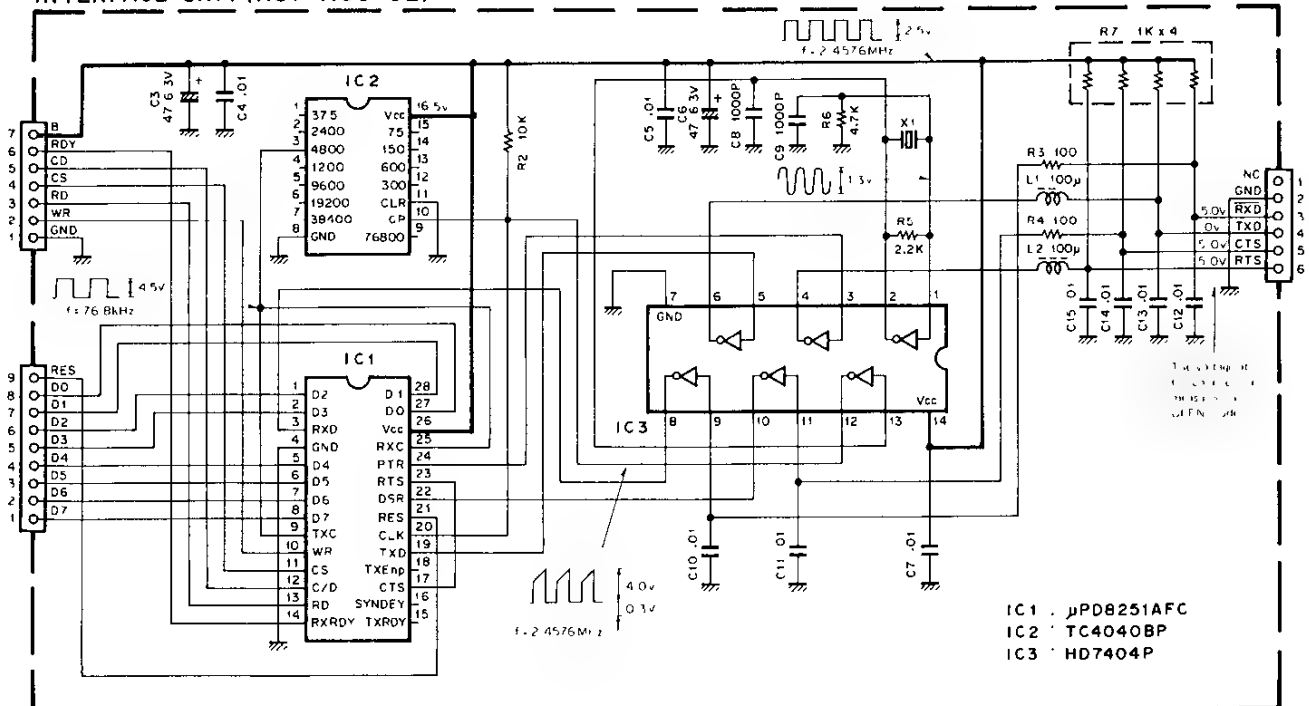
IF-10C PC BOARD VIEW

INTERFACE UNIT (X57-1160-02)



IF-10C SCHEMATIC DIAGRAM

INTERFACE UNIT (X57-1160-02)



SPECIFICATIONS

Specifications		Model	TS-140S	TS-680S
General	Mode		J3E (LSB, USB), A1A (CW), A3E (AM), F3E (FM)	
	Antenna impedance		50 ohms	
	Power requirement		12 to 16 VDC (13.8 VDC reference)	
	Grounding		Negative	
	Current drain	Receive mode with no input signal	1.5 A	
		Transmit mode	20 A	
	Operating temperature		-10 to +50°C (+14 to +122°F)	
	Frequency stability		Less than ±10 PPM	
	Frequency accuracy		Less than ±10 PPM	
	Dimensions (W×H×D) (Projections included)		281×107×305 mm (11-1/16"×4-7/32"×12")	
	Weight		6.1 kg (13.4 lbs)	
Transmitter	FOR SERVICE MANUALS CONTACT: MAURITRON TECHNICAL SERVICES www.mauritron.co.uk TEL: 01844 - 351694 FAX: 01844 - 352554		160 m band	1.8 to 2.0 MHz
			80 m band	3.5 to 4.0 MHz
			40 m band	7.0 to 7.3 MHz
			30 m band	10.1 to 10.15 MHz
			20 m band	14.0 to 14.35 MHz
			17 m band	18.068 to 18.168 MHz
			15 m band	21.0 to 21.45 MHz
			12 m band	24.89 to 24.99 MHz
			10 m band	28.0 to 29.7 MHz
			6 m band	50.0 to 54.0 MHz
	Output power	160 m band ~ 15 m band	SSB 110 W ±1	100 W ±1
			CW	100 W ±1
			AM	40 W ±1
		12 m band	SSB CW	100 W
			AM	40 W
		10 m band	SSB	100 W 95 W
			CW	95 W
			FM	50 W
			AM	40 W
		6 m band	SSB · CW · FM	10 W
			AM	4 W
	Modulation	LSB, USB	Balanced modulation	
		FM	Reactance modulation	
		AM	Low level modulation	
	Spurious radiation (CW)	1.9 MHz to 29.7 MHz	Less than -40 dB	
		50 MHz to 54 MHz	Less than -60 dB	
	Carrier suppression		More than 40 dB (with 1.5 kHz reference)	
	Unwanted sideband suppression		More than 50 dB (with 1.5 kHz reference)	
	Maximum frequency deviation (FM)		±5 kHz	
	Frequency response (-6 dB)		400 to 2600 Hz	
	Microphone impedance		500 ohms to 50 kΩ	

SPECIFICATIONS

Specifications			Model	TS-140S	TS-680S
Receiver	Circuitry			Double conversion superheterodyne	
	Frequency range			500 kHz to 30 MHz	500 kHz to 30 MHz 50 MHz to 54 MHz
	Intermediate frequency			1st: 40.055 MHz, 2nd: 455 kHz	
	Sensitivity	LSB, USB, CW (at 10 dB S + N/N)	500 kHz to 1.62 MHz	Less than 3.98 μ V	
			1.62 MHz to 21.5 MHz	Less than 0.25 μ V	
			21.5 MHz to 30 MHz	Less than 0.25 μ V	Less than 0.18 μ V *2
			50 MHz to 54 MHz	————	Less than 0.16 μ V *2
		AM (at 10 dB S + N/N)	500 kHz to 1.62 MHz	Less than 39.8 μ V	
			1.62 MHz to 21.5 MHz	Less than 2.5 μ V	
			21.5 MHz to 30 MHz	Less than 2.5 μ V	Less than 1.78 μ V *2
			50 MHz to 54 MHz	————	Less than 1.58 μ V *2
		FM (at 12 dB SINAD)	21.5 MHz to 30 MHz	Less than 0.35 μ V	Less than 0.18 μ V *2
			50 MHz to 54 MHz	————	Less than 0.18 μ V *2
	Selectivity	LSB, USB, CW		-6 dB: 2.2 kHz, -60 dB: 4.4 kHz	
		AM		-6 dB: 6 kHz, -50 dB: 18 kHz	
		FM		-6 dB: 12 kHz, -50 dB: 25 kHz	
	Image ratio			More than 50 dB	
	1st IF rejection			More than 50 dB	
	IF SHIFT variable range			More than ± 1.2 kHz	
	RIT variable range	10 Hz STEP		More than ± 1.2 kHz	
		20 Hz STEP		More than ± 2.5 kHz	
	Squelch sensitivity (FM)			Less than 0.32 μ V	
	Output			1.5 W across 8 ohms load (10% distortion)	
	Output load impedance			8 ~ 16 ohms	

Notes:

- *1: The output power on the 160 m band is limited to 10 W depending on local regulations.
- *2: This is valuable when the RF AMP switch is turned ON.
- Circuit and ratings are subject to change without notice due to advancements in technology.

FOR SERVICE MANUALS

CONTACT:

MAURITRON TECHNICAL SERVICES

ACCESSORIES

www.mauritron.co.uk

Unpack your TS-140S/680S carefully. TEL: 01844 351694 supplied with the following accessories.

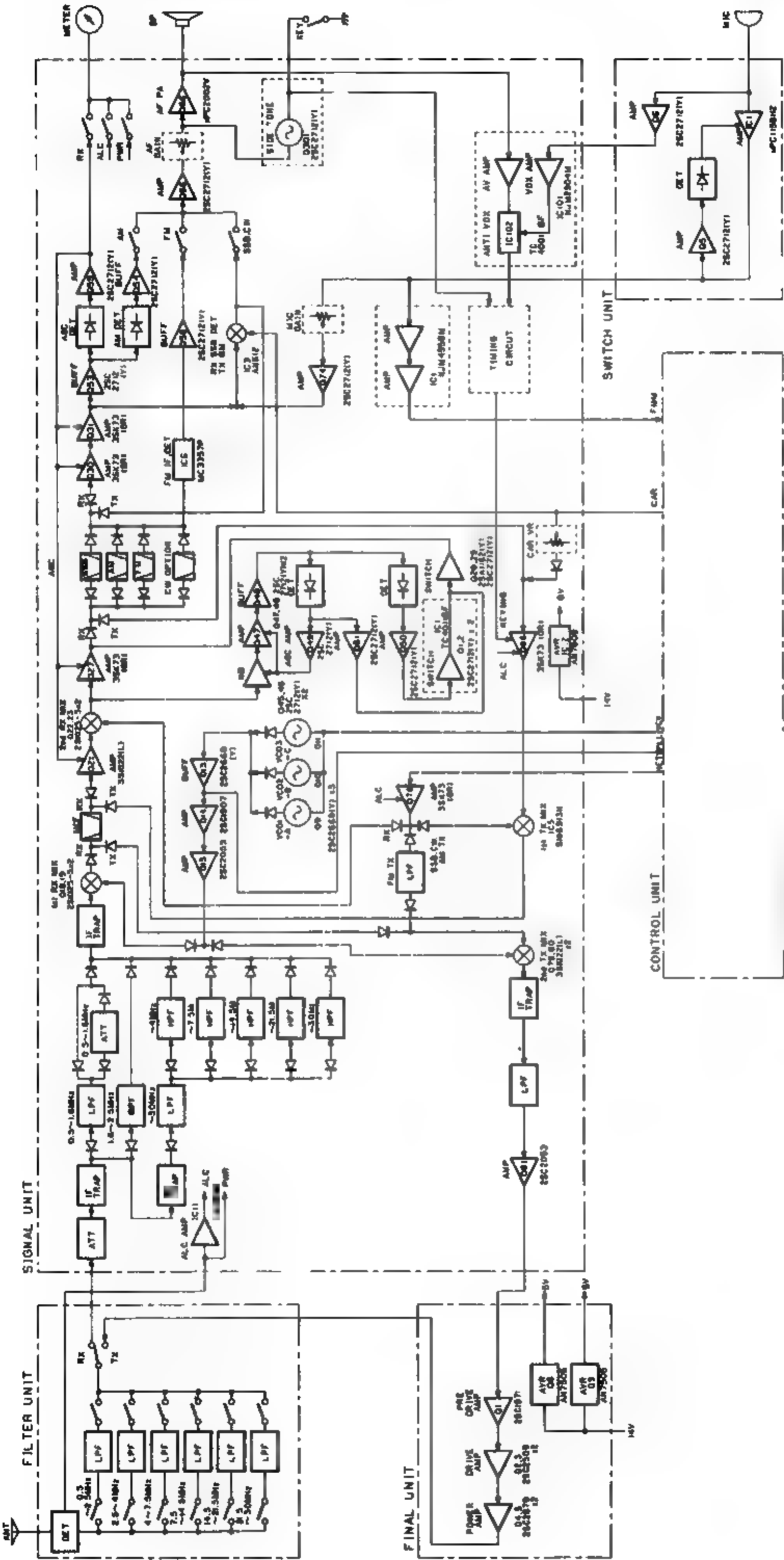
Dynamic microphone (Except European and UK versions)	T91-0352-05	1 ea.
DIN plug (7-pin)	E07-0751-05	1 ea.
DIN plug (13-pin)	E07-1351-05	1 ea.
DC power cable assembly	E30-2065-05	1 ea.
Calibration cable	E31-2154-05	1 ea.
Fuse (20A)	F05-2036-05	1 ea.
Instruction manual	B50-8199-XX	1 copy
Warranty card (U.S.A. only)		1 ea.

After unpacking

Shipping container:

Save the boxes and packing in the event your unit needs to be transported for remote operation, maintenance, or service.

5-6. BLOCK DIAGRAM



Note:

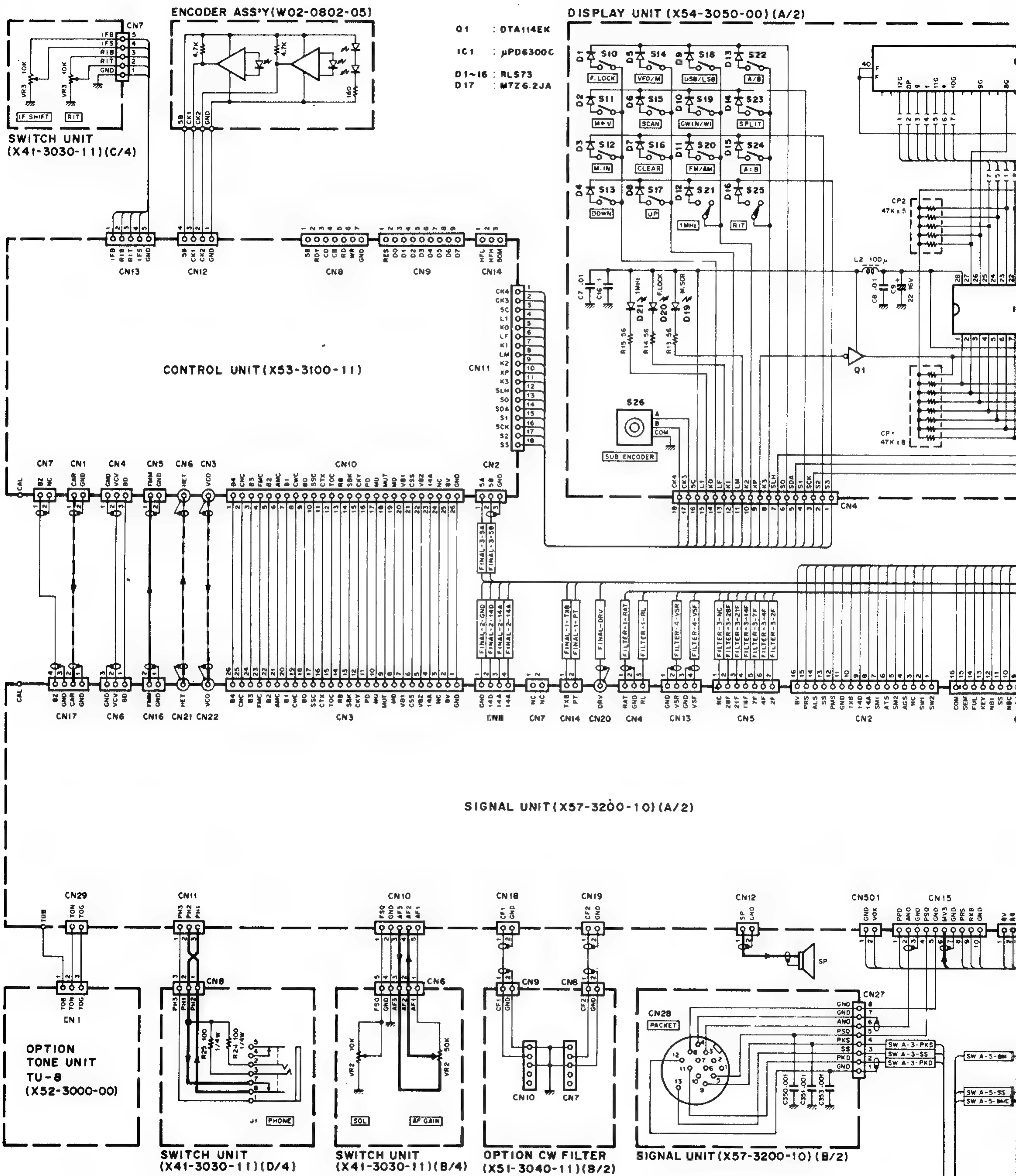
Block Diagram is subject to change without notice

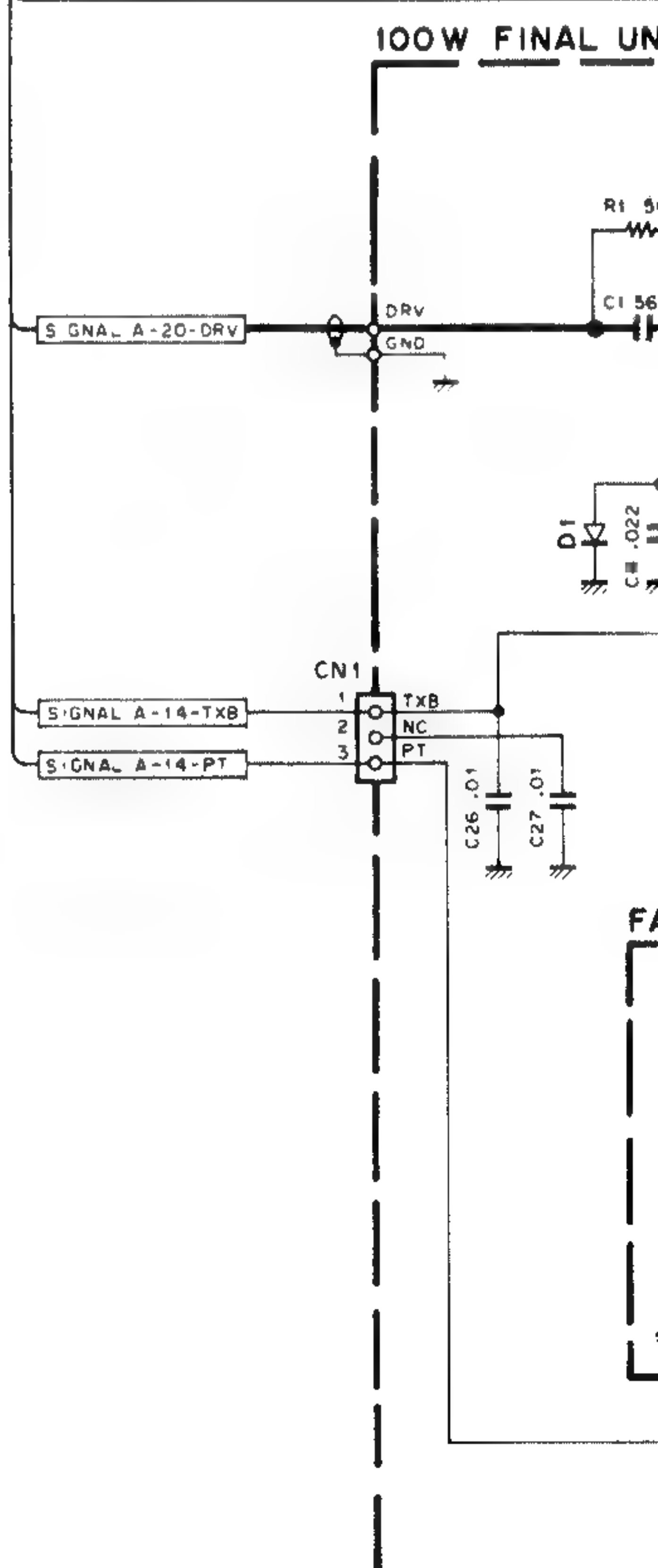
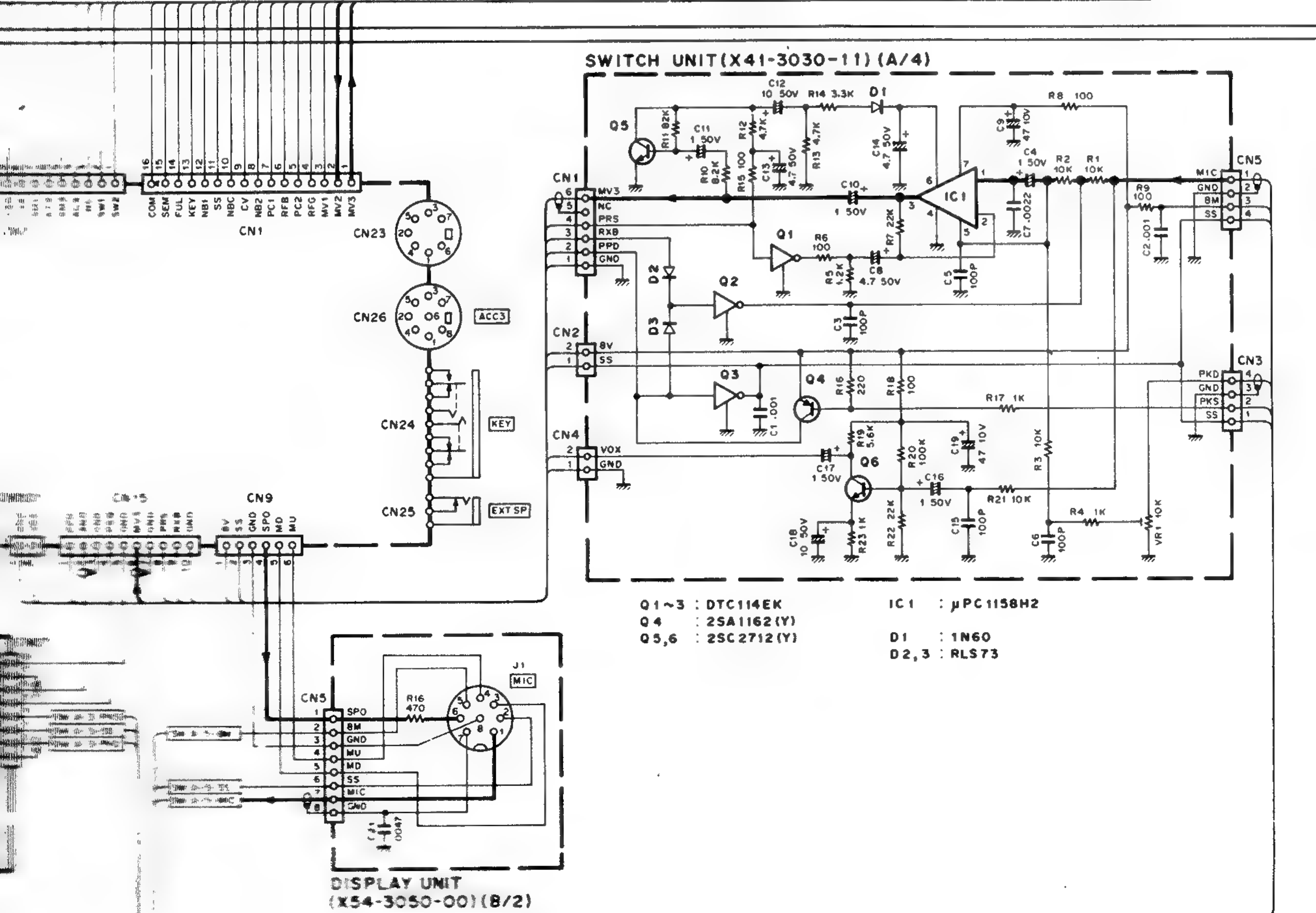
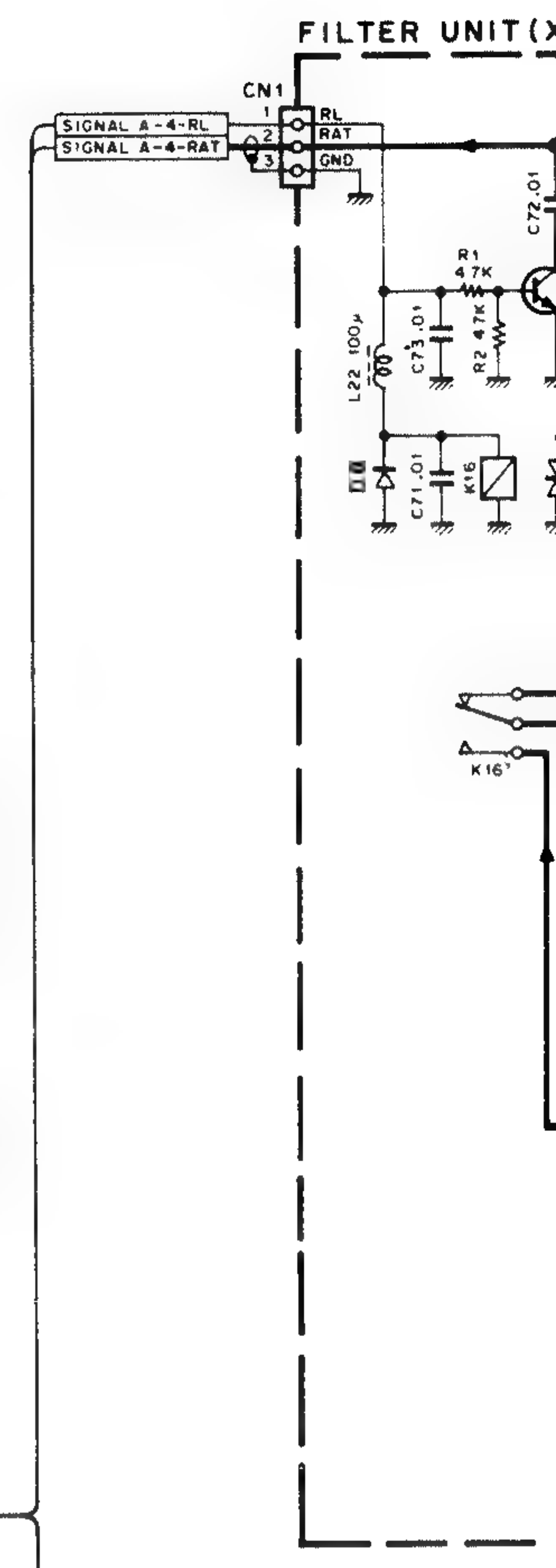
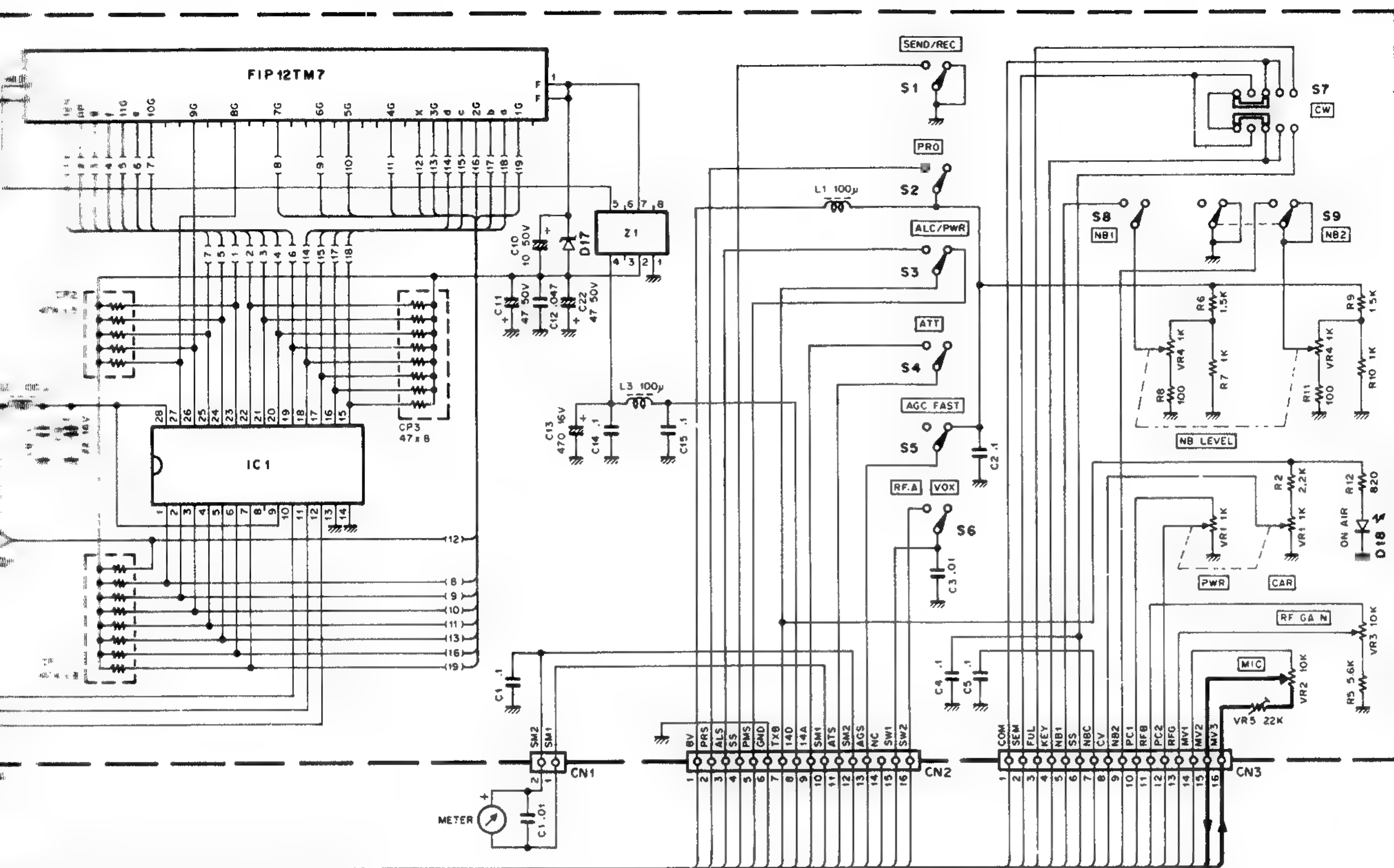
downloaded by Amateur Radio Directory

www.hamdirectory.info

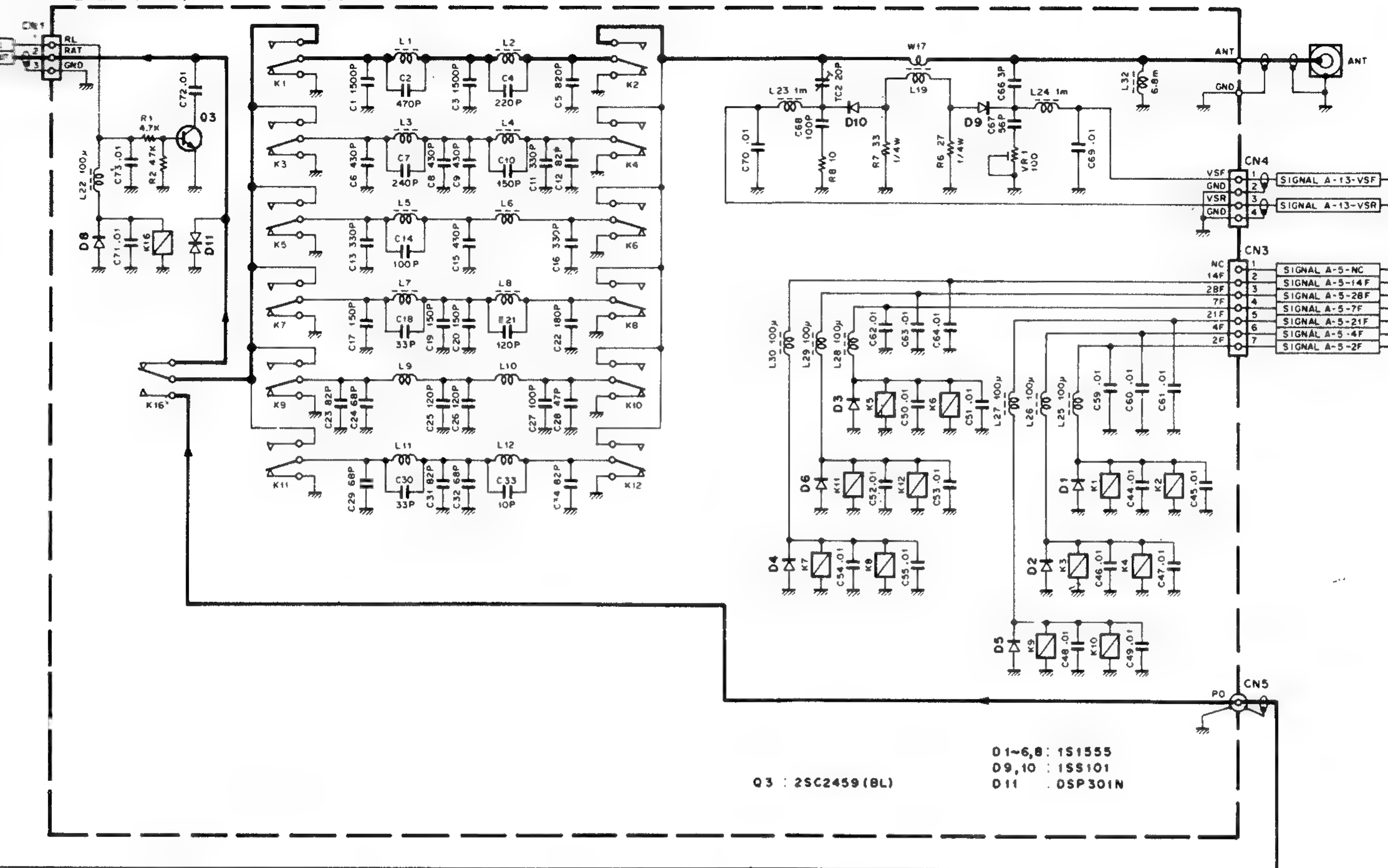
5-5. CIRCUIT DIAGRAM

■ SCHEMATIC DIAGRAM

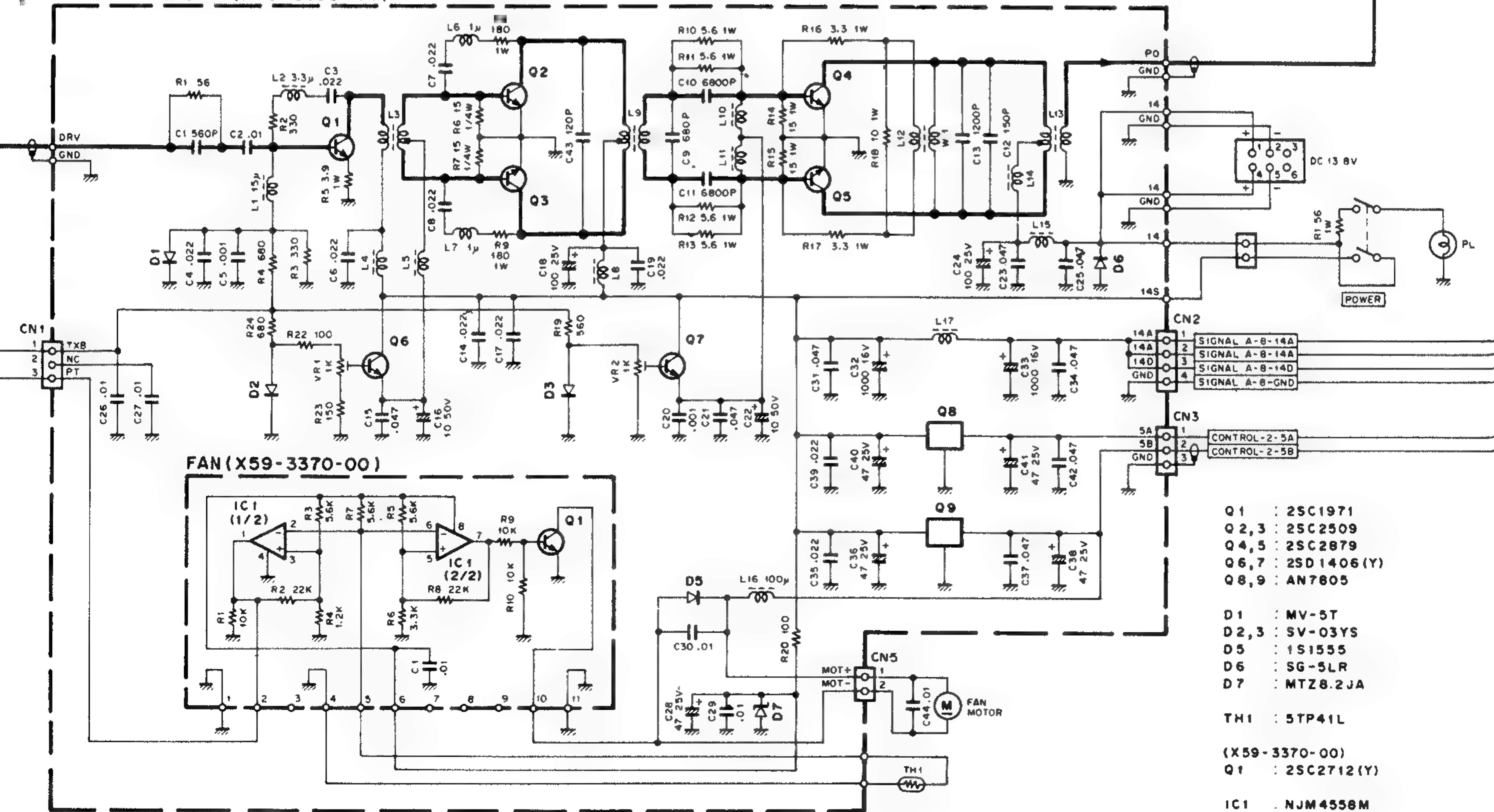




FILTER UNIT (X51-3040-11) (A/2)



100W FINAL UNIT (X45-3100-11)

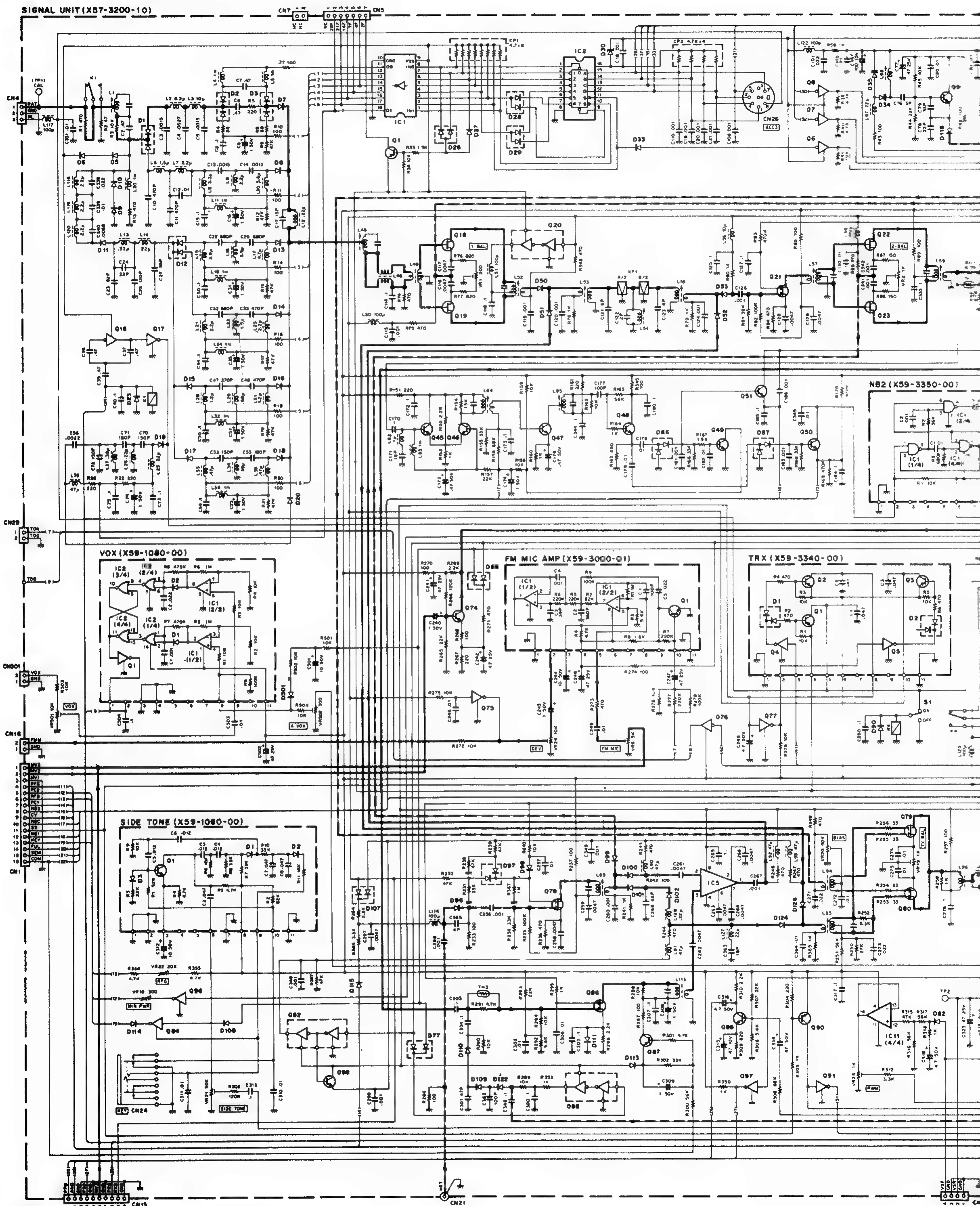


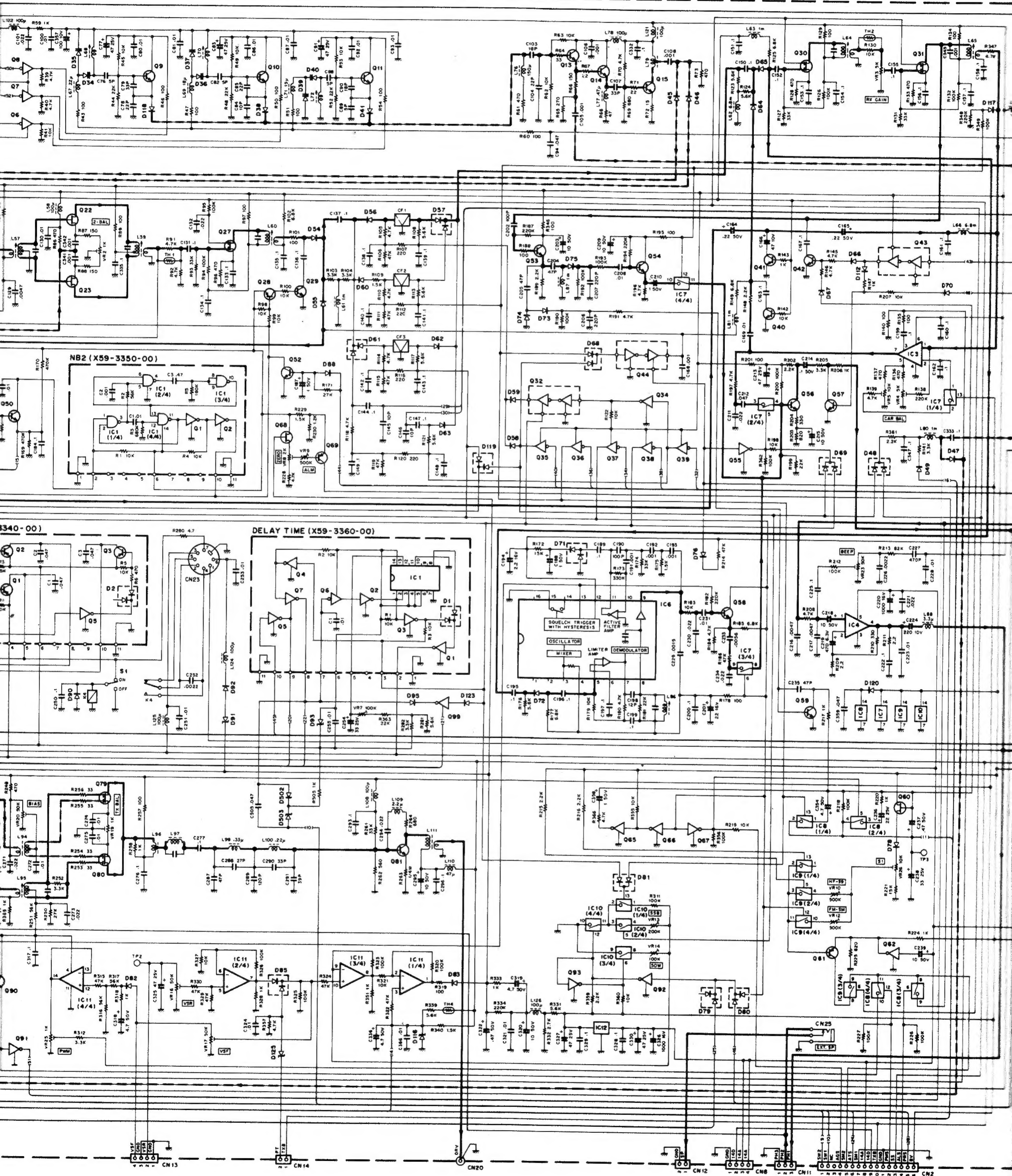
Note:

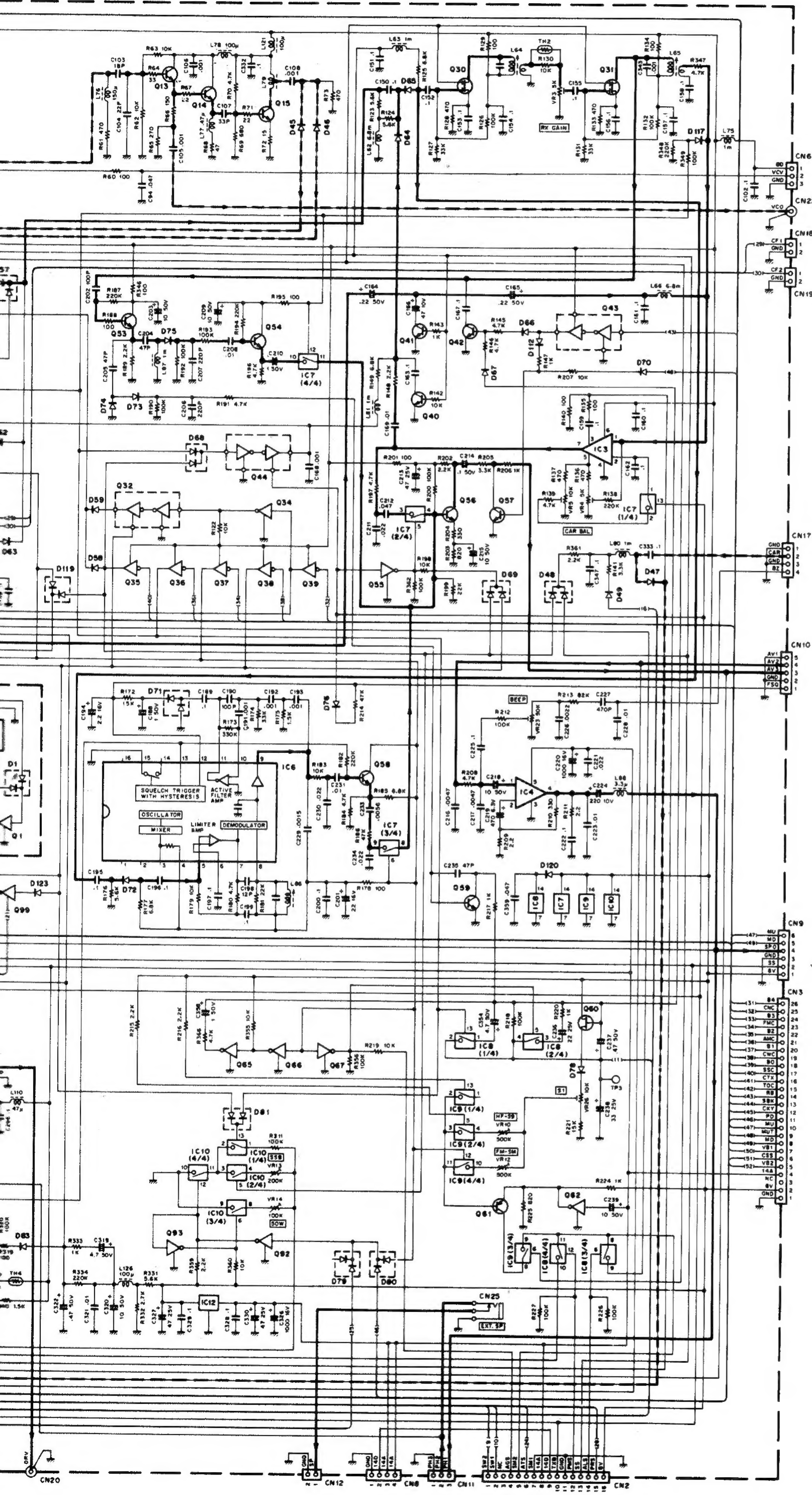
Circuit Diagram is subject to change without notice due to advancements in technology.

SIGNAL UNIT (X57-3200-10)

SIGNAL UNIT (X57-3200-10)

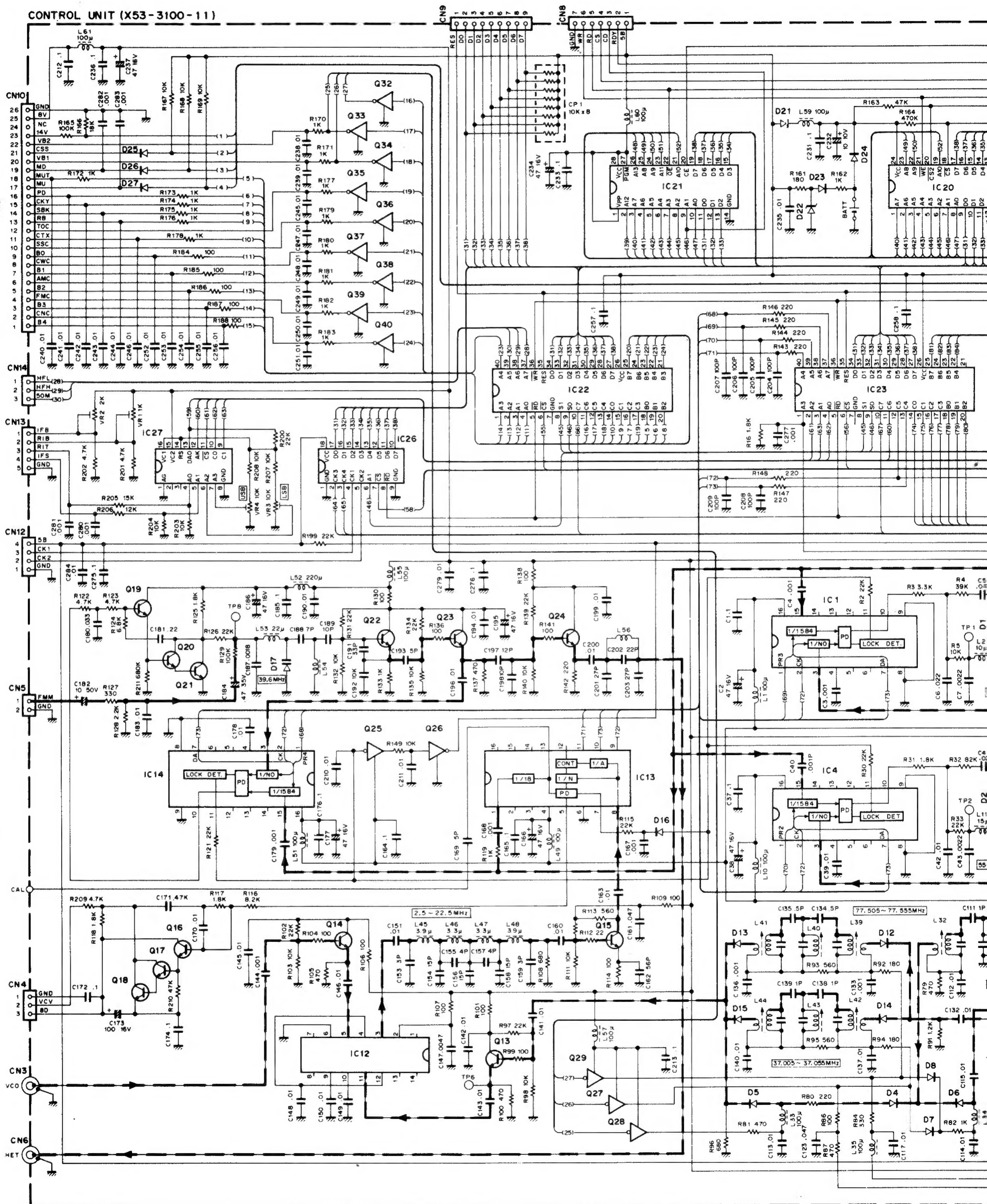


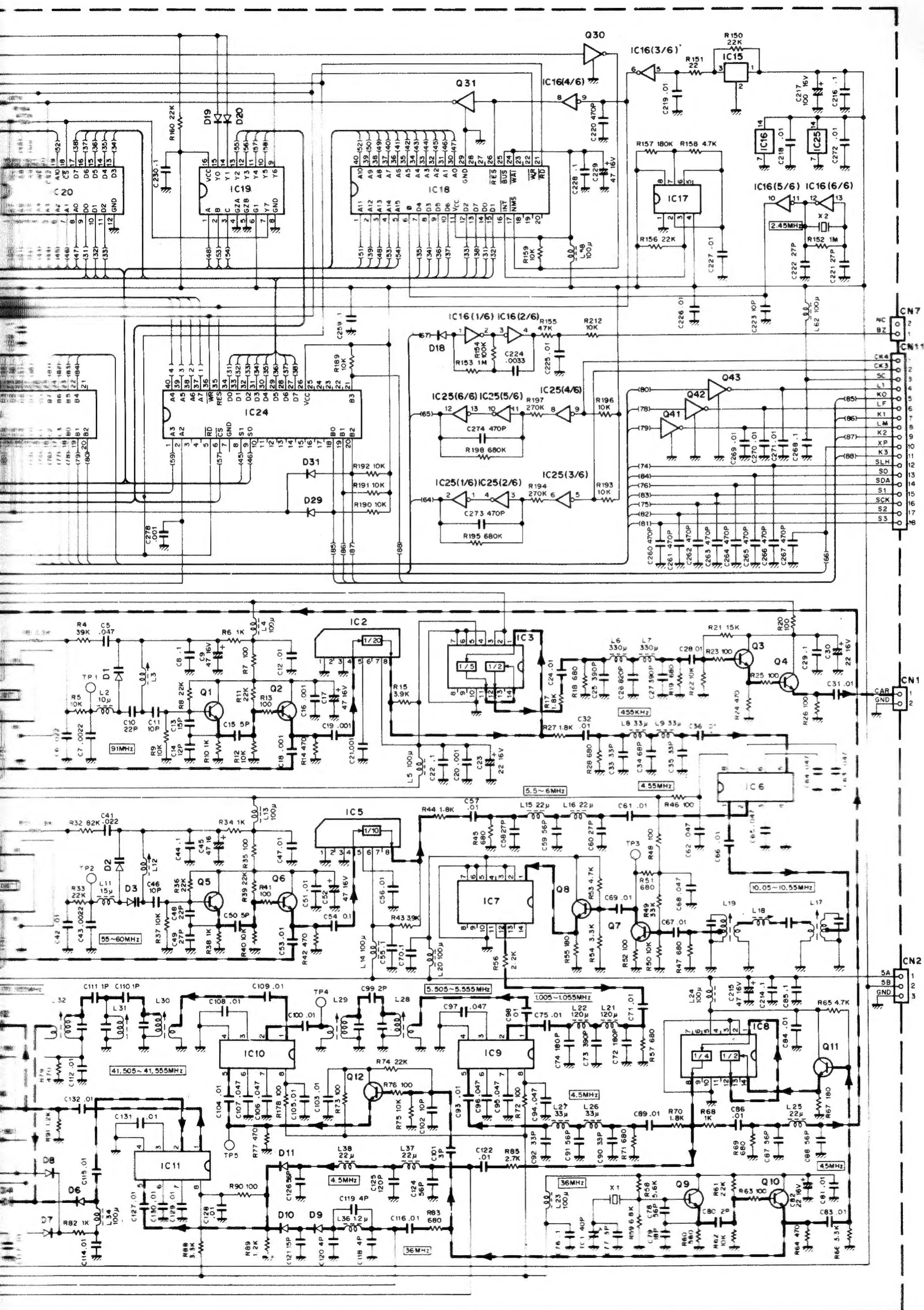




- (X57-3200-10)
Q1,26,61,69,87,90 : 2SA1162(Y)
Q17,34,55,65~67,73,77,84,
91,92,96,97,99 : DTC114EK
- Q6~8,35~39,76 : DTA143EK
Q9~11,13 : 2SC2646(Y)
- Q14 : 2SC1907
Q15,81 : 2SC2053
Q16 : DTA114EK
Q18,19,22,23 : 2SK125-S
Q20,32,43,44,82,88 : PNC3
- Q21,79,80 : 3SK122(L)
Q27,30,31,78,86 : 3SK73(6R)
Q29,40~42,45~54,56~59,
74,89,98 : 2SC2712(Y)
Q60,68 : 2SK192A(Y)
Q82,93 : DTC114TK
- IC1 : M5458(P)
IC2 : M74LS145P
IC3 : AN612
IC4 : JPC2002V
IC5 : SN16913P
IC6 : MC3357P
IC7~10 : TC4066BP
IC11 : LM324N
IC12 : AN7808
- D1~3,12 : DAN235K
D5,10 : US1090
D6,9 : V09(8)
D7,8,11,13~20,38,41,45,46,
50~53,59~102,109,110,118,
122,124,126 : RL5135
D23,90 : 1S1555
D48,57,61,68,69,77,
79~81,85,89,97,107,119 : DAN202K
D25,28,29 : DAN202K
D27,33,49,54~56,58~60,
62~67,70,72~74,76,78,83,
88,92,95,99,108,112~115,117,
120,123,501,502 : RL5135
D30,93,503 : UZ-3.0B
D34~37,39,40 : ITT310TE
D47,96 : M1204
D71,75,82,86,87 : HSW86AS
D81 : MTZ9-1J8
D111 : KB-369
D116,125 : RLZ3.6B
- TH1~4 : 112-502-2
- (X59-1060-00)
Q1 : 2SC2712(Y)
- D1,3 : DAN202K
D2 : DAP202K
- (X59-1080-00)
Q1 : 2SC2712(Y)
- IC1 : NJM2904M
IC2 : TC4001BF
- D1,2 : DAP202K
- (X59-3000-01)
Q1 : 2SC2712(Y)
- IC1 : NJM4558M
- (X59-3340-00)
Q1,2 : 2SA1204(Y)
Q3 : 2SA1182(Y)
Q4,5 : DTC114EK
- D1,2 : DAN202(K)
- (X59-3350-00)
Q1,2 : DTC114EK
- IC1 : TC4011BF
- (X59-3360-00)
Q1~5 : DTC114EK
Q6 : DTA114EK
Q7 : DTC114TK
- D1 : DAN202(K)

Note:
Circuit Diagram is subject to





- | | |
|-------------|--------------------|
| D1 | : 1SV555 |
| D2,3 | : 1TTS107 |
| D4 ~ 6 | : RLS135 |
| 9 ~ 15 | |
| D7,8,16 | : RLS73 |
| 18 ~ 21 | |
| 23 ~ 27 | |
| 217 | : 1SV153 |
| C22 | : UZ3.3BCA |
| D25,31 | : ISS133 |
| IC1,4,14 | : M54927P |
| IC2 | : M54459L |
| IC3 | : SN74LS90N |
| IC5 | : M54460L |
| IC6,9,10,11 | : SN16913P |
| IC8 | : M74LS93P |
| IC12 | : SN76514N |
| IC13 | : MB87006A |
| IC15 | : PST520D |
| IC16,25 | : TC4069UBP |
| IC17 | : ME555C or NE555P |
| IC18 | : BU18400A |
| IC19 | : SN74LS138N |
| IC20 | : TC5518CPL - 20 |
| IC21 | : MBM27C128 - 25JA |
| IC22 ~ 24 | : TMP8255AP - 5 |
| IC26 | : LZ92K37 |
| IC27 | : MB4052 |
| Q1,2,5,6 | : 2SC2668(Y) |
| 10 ~ 15 | |
| 22 ~ 24 | |
| Q3,7,8 | : 2SC2458(Y) |
| Q4 | : 2SC1959(Y) |
| Q9 | : 2SC2787(L) |
| Q16 ~ 21 | : 2SC2459(BL) |
| Q25 | : DTA124ES |
| Q26 | : DTC124ES |
| Q27 ~ 29 | : DTA143ES |
| Q30 ~ 40 | : DTC144WS |
| Q41 ~ 43 | : DTC143TS |